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WITH

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M,DCC,XCI.

NATURAL HISTORY.

CHAP. XX.

OF THE SERVAL—THE OCELOT—THE MARGAY—THE JACKALL, AND THE ADIL—THE ISATIS—THE GLUTTON—THE STINKING POLE-CATS—THE PEKAN, AND THE VISON—THE SABLE—THE LEMING—THE CANADIAN OTTER—THE SEAL—THE SEA LION—THE MORSE—THE DUGON—THE MANATI.

The Serval.

THIS animal has been kept alive ſeveral years in the royal menagerie, by the name of the *tiger cat;* and we ſhould have ſtill remained ignorant of its true name, if M. de Montmirail had not found it out in the account of an Italian voyage, which he has tranſlated:—"The *maraputia*, which the Portugueſe in India call *ſerval*," ſays Vincent Maria, "is a wild and ferocious animal, much larger than the wild cat, and ſomewhat leſs than the civet, which it differs from by its head being rounder and thicker in proportion to its body, and its face ſinking in about the middle of it. It reſembles the panther in the colour of the hair, which is brown upon the head, back and ſides, and white under the belly; and alſo in the ſpots, which are diſtinct, equally diſtributed, and leſs than thoſe of the panther. Its eyes are very brilliant: its whiſkers are compoſed of long and ſtiff briſtles; its tail is ſhort; its feet large, and armed with long and hooked claws. It inhabits the mountains of India, and is very ſeldom ſeen on the ground. It remains almoſt continually upon high trees, where it catches birds, on which it feeds. It leaps alſo as nimbly as a monkey, and conveys itſelf from one tree to another with ſuch great addreſs and agility, that it may be ſaid only to appear and diſappear. It is ferocious in its nature, but flies the approach of man."

Neither good nor bad treatment, will ſoften the ferocity of this animal. It ſeems to be the ſame creature as the tiger-cat of Senegal and the Cape of Good Hope, which, according to the teſtimony of travellers, reſembles our cat in its ſhape and ſize. "This animal," they ſay, "is four times as large as a cat, of a voracious nature and feeds like the monkey, the rat, &c."

The Ocelot.

The Ocelot is a furious and carnivorous animal, which muſt be placed next the jaguar, or the cougar; for it is very near the ſize, and reſembles them in its nature and figure. A male and a female ocelot were ſhewn at the fair of S. Ovid, in September of 1764. They came from the countries adjoining to Carthagena, and had been taken from their dam in the month of October, 1763; they became ſo ſtrong and cruel at the end of three months, as to devour the bitch which had nurſed them. When we ſaw them, they were about a year old, and

about two feet long. They had then, probably, only attained one half or two thirds of their growth. Theſe animals were ſhewn by the name of the *tiger cat;* but we have rejected this denomination as precarious and confuſed, eſpecially as the jaguar, ſerval, and the margay, have been ſent to us with the ſame name. Thoſe three animals are very different indeed from each other, and from the animal which is the ſubject of our preſent deſcription.

A full grown ocelot is two feet and a half high, and about four feet long. Its tail, although of a ſufficient length, does not touch the ground when it is hanging down, and conſequently it is not two feet long. This animal is very voracious, but at the ſame time timid. It very ſeldom attacks the human ſpecies, and is terrified at the ſight of a dog. When it is purſued, it flies to the foreſts, and climbs up a tree to ſave itſelf, where it ſleeps, and watches for its prey. It prefers blood to fleſh; hence it deſtroys ſuch a number of animals; for, inſtead of ſatisfying its hunger by eating them, it only quenches its thirſt by ſucking their blood.

In its captive ſtate, it preſerves its ferocious nature; nothing can tame it, nor quiet its reſtleſs motion, which obliges its keeper to confine it conſtantly in a cage.

The Margay.

The Margay is much ſmaller than the ocelot. It reſembles the wild cat in the ſize and ſhape of its body. Its head however is more ſquare, its ſnout longer, its ears rounder, and its tail longer: its hair alſo is ſhorter, and it has black ſtreaks and ſpots on a brown ground. It was ſent to us from Cayen, by the name of the *tiger-cat;* and, in fact, it partakes of the nature of the cat and the jaguar, or the ocelot, which are the two animals to which the name of tiger has been affixed in the New Continent. According to Fernandes, when this animal is full grown, it is not quite ſo large as the civet. According to Marcgrave, whoſe compariſon is juſter, it is about the ſize of a wild cat, which it alſo reſembles in its natural habits, living only upon fowls, and other ſmall game. It is ſuch as we have here deſcribed it. This animal is very common in Braſil, and in all the other provinces of South America.

The Jackal, and the Adil.

We are not certain, that thoſe two names denote two animals of different ſpecies. We only know that the jackal is a larger animal, which is more ferocious, and difficult to be tamed than the adil. From the narratives of travellers, it appears, that there are both great and ſmall jackals, as well in America, as in Sileſia, Ruſſia, and every part of Aſia, which we call the Levant, where this ſpecies is very numerous, very troubleſome, and very hurtful. Theſe animals are generally about the ſize of our foxes; but their legs are ſhorter; and they are remarkable for the colour of their hair, which is of a gloſſy and bright yellow. Hence ſeveral authors have called the jackal the *golden wolf.* As both the jackal and the adil, however, are natives of the ſame countries; as the ſpecies has not been altered by a long domeſticity, and as there is a conſiderable difference in the ſize, and even in the nature of theſe animals, we ſhall conſider them as two diſtinct ſpecies, with the reſerve of uniting them, when we ſhall have occaſion to prove, that they cohabit and copulate together.

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As the ſpecies of the wolf approaches that of the dog, ſo the jackal finds a place between the two. The *jackal* or *adil*, as Belon ſays, *is a beaſt between the wolf and the dog.* In it the ferocity of the wolf is a little tempered with the familiarity of the dog. Its voice is a kind of howl, mixed with barking and groaning: it is more noiſy than the dog, and more voracious than the wolf: it never ſtirs out alone, but always in packs, of twenty, thirty, or forty. They collect together every day, to go in queſt of prey: they make themſelves formidable to the moſt powerful animals, by their number: they attack every kind of beaſts or birds, almoſt in the preſence of the human ſpecies: they abruptly enter ſtables, ſheepfolds, and other places, without any ſymptom of fear; and when they cannot meet with any other thing, they will devour boots, ſhoes, harneſſes, &c. and what leather they have not time to conſume, they carry off with them. When they cannot meet with any live prey, they dig up the dead carcaſes of men and animals. The natives are obliged to cover the graves of the dead with large thorns, and other things, to prevent them from ſcratching and digging up the dead bodies. The dead are buried very deep in the earth; for it is not a little trouble that diſcourages them. Numbers of them work together, and accompany their labour with a doleful cry. As ſoon as they are accuſtomed to feed on dead bodies, they run from country to country, follow armies, and keep cloſe to the caravans. This animal may be ſtiled the crow of quadrupeds; for they will eat the moſt putrid or infectious fleſh. Their appetite is ſo conſtant, and ſo vehement, that the drieſt leather is ſavory to them; and ſkin, fleſh, fat, excrement, or the moſt putrified animal, is alike to their taſte.

The Iſatis.

The iſatis is very common to be met with in the northern countries, and but rarely found on this ſide ſixty-nine degrees latitude. It is nearly two feet in length: it perfectly reſembles the fox, in the form of its body, and the length of the tail; but its head is like that of a dog. Its hair is ſofter than that of the common fox: its head is ſhort in proportion to its body: it is broad towards the neck, and terminates in a ſharp-pointed ſnout. Its ears are almoſt round. There are five claws to the fore feet, and only four toes and four claws to the hinder ones. The hair on every part of the body is about the length of two inches, ſmooth and ſoft as wool.

The voice of the iſatis participates of the barking of the dog, and the yelping of the fox. Thoſe who deal in furs, diſtinguiſh two animals of this kind, the one white, and the other aſh-coloured. The laſt are the moſt valuable.

The iſatis lives upon rats, hares, and birds, which it catches with as much ſubtilty as the fox. It plunges in the water, and traverſes the lakes, in queſt of water-fowls and their eggs. The only enemy it has in the deſart and cold countries which it inhabits, is the *glutton.*

The Glutton.

The body of the glutton is thick, and its legs are ſhort. It is nearly of the ſize of a ram, but twice as thick. Its head is ſhort, its eyes ſmall, its teeth very ſtrong, its tail rather ſhort, and covered with hairs to its extremity. It is black along the back, and of a reddiſh brown on the flanks. Its fur is exceedingly beautiful, and much valued. It is common in Lapland, and all the neighbouring countries of the Nor-

thern Sea, as well in Europe as in Aſia. It is called *Carcajou* in Canada, and the northernmoſt parts of America. The animal pointed out by Fernandes, by the name of the *Mountain Dog*, is probably of the glutton ſpecies, which poſſibly is diſperſed as far as the deſart mountains of New Spain.

The legs of the glutton are not formed for running. Its pace is very ſlow; but its cunning ſupplies this deficiency: it waits the arrival of its prey in ambuſh; and in order to ſeize it with greater ſecurity, it climbs up a tree, from which it darts down on the elk and the rein deer, and faſtens itſelf ſo ſtrongly with its claws and teeth, that the utmoſt efforts of the animal cannot remove it. The animal in vain flies with its utmoſt ſpeed: in vain it rubs itſelf againſt trees, and other objects. Faſtened on its back or loins, the glutton ſtill perſiſts in tormenting it, by digging into its fleſh, and ſucking its blood, till it expires. Upon this the glutton devours it by piecemeal, with the utmoſt avidity and obſtinate cruelty. It is incredible how long the glutton will eat at a time, and what a quantity of fleſh it will devour at one ſingle meal.

From this quality, the glutton has obtained the name of the *Quadruped Vulture*. It is more inſatiable, and commits greater depredations, than the wolf. It would deſtroy every animal, if it had ſufficient agility; but the only animal it is capable of taking on foot, is the beaver, which it eaſily overcomes. It even often attacks that animal in its hole, and devours both it and its young, if they do not get to the water in time; for then the beaver eſcapes its enemy by ſwimming, and the glutton ſtops its purſuit to feed upon the fiſh. When it can procure no living food, it goes in ſearch of carcaſes, ſcratches open graves, and devours the fleſh of dead bodies to the very bone.

Although this animal is ſubtle, and uſes every art to conquer other animals, it appears deſtitute of inſtinct for its own preſervation. It ſuffers the human ſpecies to approach it without the leaſt appearance of fear. This indifference, which ſome may take for imbecility, is occaſioned, perhaps, by a very different cauſe. It is certain, that the glutton is not a ſtupid animal, ſince it readily finds means to ſatisfy its perpetual and almoſt immediate appetite. It does not want courage, ſince it attacks every animal that comes in its way, and does not fly at the ſight of man, nor even ſhew the leaſt mark of ſpontaneous fear. If, therefore, it is deficient in a proper care for its own ſafety, it does not ariſe from an indifference for its own preſervation, but only from its habit of ſecurity, as it is a native of almoſt every deſart country, where it ſeldom meets with any of the human ſpecies.

As the iſatis is not ſo ſtrong, but much ſwifter than the glutton, it ſerves the latter as a purveyor: for, the moment the glutton approaches the iſatis, to avoid deſtruction itſelf, it leaves what remains, for the glutton. Both theſe animals burrow in the ground; but in every other habit they are different. The iſatis may be termed a ſocial, whilſt the glutton may be accounted a ſolitary animal. The fierceſt dogs are fearful of attacking the glutton, which defends itſelf with its teeth and feet, and often mortally wounds them.

The fleſh of the glutton, like that of every other voracious animal, is very unpalatable. It is only hunted for its ſkin, which makes an exceedingly good and beautiful fur, not inferior to that of the ſable and black fox. It is alſo ſaid, that, when properly choſen and well dreſſed,

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it has a more excellent gloſs than any other ſkin, and has even the beauty of a rich damaſk.

The Stinking Polecats.

The ſtinking polecats are found in every part of South America. They may be divided into four ſpecies; the *ſquaſh*, the *conepate*, the *ſkink*, and the *zorille*. The two laſt may be conſidered as originals, as we do not meet with their figure in any other author.

The firſt of theſe animals is about ſixteen inches long: its legs are ſhort, its ſnout pointed, its ears ſmall, its hair of a deep brown, and its claws black and ſharp. It chiefly inhabits the hollows and clefts of rocks, where it brings forth its young. It preys upon ſmall animals, birds, &c. and when it can ſteal into a farm-yard, it kills the poultry, but only eats their brains. When it is purſued or offended, it ſummons up all its diabolical ſcents to its defence, and emits ſuch a horrid ſtench, that it is dangerous for men or dogs to approach it. Its urine is apparently infected with this nauſeous vapour, which, however, we muſt obſerve, does not ſeem habitual to it.

Among the four kinds of *ſtinkards* we have mentioned above by the names of the *ſquaſh*, *conepate*, *ſkink*, and *zorille*, the two laſt belong to the hotteſt countries of South America, and may poſſibly be no more than two varieties, and not two different ſpecies. The two firſt are varieties of New Spain, Louiſiana, Carolina, and other temperate climates, and appear to me to be two ſpecies diſtinct and different from the reſt; but principally the ſquaſh, which has a particular character, of having only four claws on the fore feet, whereas all the reſt have five. Notwithſtanding this, theſe animals have nearly the ſame figure, the ſame inſtinct, the ſame offenſive ſcent, and only differ, as I may ſay, by the colour and length of the hair. The ſquaſh, as has been obſerved, is of a pretty uniform brown colour, and its tail is not tufted like the reſt. The conepate has five white ſtripes on a black ground, running longitudinally from the head to the tail. The ſkink is white on the back and black on the ſides, but quite black on the head, except a white ſtreak, which runs from the nape of the neck to the fore-head. Its tail is tufted, and clothed with very long white hairs, mixed with ſome of a black colour.

The zorille, which is alſo called mauripita, is ſtill ſmaller, and has a moſt beautiful tail, furniſhed with as great abundance of hair as the ſkink, from which it differs by the diſpoſition of the ſpots on its coat, the white ſtreaks running longitudinally from the head to the middle of the back, on a black ground. Beſides theſe, there are other kinds of ſtreaks, which paſs tranſverſely over the loins, the crupper, and the root of the tail, one half of which is black and the other white, whereas in the ſkink they are all of the ſame colour.

Kalm, ſpeaking of this animal ſays, "one of them came near the farm where I lived. It was in winter, and during the night, and the dogs that were upon the watch, purſued it for ſome time, until it diſcharged its urine againſt them. Although I was in my bed a good way off, I thought I ſhould have been ſuffocated, and the cows and oxen, by their lowings, ſhewed how much they were affected by the ſtench. About the end of the ſame year, another of thoſe animals crept into our cellar, but did not exhale the ſmalleſt ſcent, becauſe it was not diſturbed. A fooliſh woman, however, who perceived it at night,

night, by the ſhining of its eyes, killed it, and at that moment its ſtench began to ſpread. The whole cellar was filled with it to ſuch a degree, that the woman kept her bed for ſeveral days after, and all the meat, bread, and other proviſions, that were kept there, were ſo infected, that they were obliged to be thrown out of doors."

All theſe animals are nearly of the ſame form and ſize as the European pole-cat. They reſemble it alſo by its natural habits; and the phyſical reſult of their generation are the ſame.

The Pekan and the Viſon.

The name of pekan has long been familiar to the fur merchants of Canada, without their knowing the animal to which it has been appropriated. We are alſo ignorant of the origin of the name of the *viſon* as well as of the *pekan*, and it is only ſaid that they belong to two different animals of South America.

The pekan ſo ſtrongly reſembles the marten, and the viſon is ſo very like the pole-cat, that we are inclined to look on them as varieties of theſe two ſpecies. Hence we regard the pekan as a variety in the ſpecies of the marten, and the viſon as a variety in that of the pole-cat, or, at leaſt to conſider them as ſpecies approaching ſo near each other, that they do not exhibit any real difference. The hair of the pekan and the viſon is only more ſoft, brown and gloſſy than that of the marten and pole-cat, but this difference, is common to them as well as to the beaver, otter, and other animals of North America, whoſe fur is more beautiful than that of thoſe in the north of Europe.

The Sable.

Almoſt every naturaliſt has ſpoken of this animal without knowing any thing more of it than its ſkin. Mr Gmelin is the firſt who has given its figure and deſcription: he ſaw two living ones at the governor of Tobolſki's. "The ſable, (ſays he) reſembles the marten in its ſhape and habit of body, and the weaſel in the number of its teeth. It has large whiſkers about the mouth, its feet are broad, and armed with five claws, like the reſt of its kind. Theſe characters were common to theſe two ſables; but one of them was of a dark brown, except the ears and the throat, where the hair was rather yellow; the other, which was ſmaller, was more of a yelliowiſh caſt: its ears and throat being alſo much paler. Theſe are the colours they both have in winter, and which they are ſeen to change in the ſpring; the former becoming of a yellow brown, the other of a pale yellow."

Theſe animals inhabit the banks of rivers in ſhady places, and in the thickeſt woods. They leap with great eaſe from tree to tree, and are ſaid to be afraid of the ſun, which tarniſhes the luſtre of their robes in a very ſhort time. They are alſo improperly ſaid by ſome, to hide themſelves, and to remain torpid during the winter. This ſeaſon, on the contrary, is the principal time in which they are hunted as their ſkins are far better in winter than in ſummer. They live on rats, fiſh and wild fruit. They have the diſagreeable odour of their kind. They are moſtly found in Siberia, and but very few in Ruſſia, and there are ſtill fewer in Lapland and other countries. The blackeſt ſkins are the moſt eſteemed. The difference of this ſkin from others, conſiſts in the quality of the fur, which has no grain, and when rubbed any way, is equally ſmooth and unreſiſting; whereas, the furs of other animals, rubbed againſt the grain, give a ſenſation of roughneſs from their reſiſtance.

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The hunting of the ſable is impoſed on condemned criminals, who are ſent from Ruſſia into theſe wild foreſts, which, for a great part of the year, are covered with ſnow. Theſe unfortunate wretches remain there many years, and are obliged to furniſh a certain number of ſkins every year. They only kill this animal by a ſingle ball, in order to damage it as little as poſſible; and ſometimes, inſtead of fire arms, they make uſe of the croſs-bow and very ſmall pointed arrows. As the ſucceſs of this hunting, ſuppoſes addreſs and great aſſiduity, the officers are permitted to encourage, by allowing the huntſmen, to ſhare among themſelves the ſurplus of thoſe ſkins which they procure; and this, in a few years, amounts to a very conſiderable ſum.

The Leming, or Lapland Marmot.

The Leming, or Lapland Marmot, is of the ſhape of a mouſe, but has a ſhorter tail. Its body is five inches long, covered with fine hair of various colours. The extremity of the upper part of the head and likewiſe the neck and ſhoulders are black; but the reſt of the body is reddiſh, intermixed with ſmall black ſpots of various figures. The tail, which is not above half an inch long, is covered with browniſh hairs, and the ſpots vary, both in their form and ſize. In ſome there are many red hairs about the mouth, reſembling whiſkers, ſix of which are longer and redder than the reſt. The mouth is but ſmall, and the upper lip is divided like that of the ſquirrel. The remains of the food in the throat of this animal, incline us to imagine it ruminates. The eyes are ſmall and black; the ears round, and inclining towards the neck. The legs before are ſhort, and thoſe behind longer, which gives it a greater degree of ſwiftneſs: the feet are clothed with hair, and armed with five very ſharp crooked claws: the middle claw is very long, and the fifth is like a little finger, or the ſpur of a cock, ſometimes placed very high up the leg. The colour of the hair on the belly, is between white and yellow. This animal, therefore, whoſe legs are very ſhort, runs very ſwift. It generally inhabits the mountains of Norway and Lapland, but they deſcend in ſuch great numbers in ſome years, and in ſome ſeaſons, that the inhabitants look on their arrival as a terrible and inevitable ſcourge. They move, for the moſt part, in a ſquare, marching forward by night, and reſting by day. Thus, like an animated torrent, they are often ſeen more than a mile broad, covering the ground, ſo thick, that the hindmoſt touches its leader. It is in vain, that the inhabitants reſiſt, or attempt to ſtop their progreſs: they ſtill keep moving forward; and though thouſands are deſtroyed, myriads are ſeen to ſucceed and make their deſtruction impracticable. They generally move in lines, which are about three feet from each other, and exactly parallel. Their march is always directed from the north-weſt to the ſouth-weſt, and regularly conducted from the beginning. Whenever their motions are turned, nothing can ſtop them: they go directly forward, impelled by ſome ſtrange power; and from the time they at firſt ſet out, they reſolutely perſiſt. If a lake, or a river, happen to preſent itſelf as an obſtacle, they take the water in a body. A fire, a deep well, or a torrent, does not turn them out of their ſtrait lined direction; they boldly plunge into the flames, or leap down the well, and are ſometimes ſeen climbing up on the other ſide. If they are interrupted by a boat acroſs the river while they are ſwimming, they never attempt to ſwim round it, but mount directly up its ſides; and the boatmen,

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who know how vain reſiſtance would be, calmly ſuffer the living torrent to paſs-over. If they meet with a ſtack of hay or corn which interrupts their paſſage, they gnaw their way through it; if they are ſtopped by a houſe in their courſe, if they cannot get through it, they continue there till they die. It is lucky, however, that they eat nothing that is prepared for human ſubſiſtance. They never enter an houſe to deſtroy the proviſions, but are contented to eat every root and vegetable that they find. If they happen to paſs through a meadow, they deſtroy it in a ſhort time, and give it an appearance of being burnt up and ſtrewed with aſhes. If they are interrupted in their courſe, and a man ſhould imprudently venture to attack one of them, the little animal is not the leaſt intimidated by the diſparity of ſtrength, but furiouſly flies up at its opponent, and barking ſomewhat like a puppy, wherever it faſtens it does not eaſily quit its hold. If, at laſt, the leader be found out of its line, which it defends as long as it can, and be ſeparated from the reſt of its kind, it emits a plaintive cry, different from that of anger, and, according to ſome, hangs itſelf on the fork of a tree.

An enemy ſo numerous and deſtructive, would quickly render the countries, where they appear, utterly uninhabitable, did it not fortunately happen, that the ſame rapacity that animates them to deſtroy the labours of mankind, alſo impels them to deſtroy each other. After committing incredible devaſtations, they are ſeen to ſeparate into two armies, oppoſed with deadly hatred along the coaſt of the larger lakes and rivers. The Laplanders, who obſerve them thus drawn up to fight inſtead of conſidering their mutual animoſities as a fortunate deliverance of the moſt dreadful peſt, form ominous prognoſtics from the manner of their engagments. They conſider their combats as a preſage of war, and expect an invaſion from the Ruſſians or Swedes, as the ſide, next thoſe kingdoms happen to conquer. The two diviſions, however, continue their engagements and animoſity until one part overcomes the other; after which they diſappear entirely, nor is it well known what becomes of either the conquerors, or the conquered. Some ſuppoſe, that they ruſh headlong into the ſea. Others, imagine that they kill themſelves, as ſome are found hanging on the forked branches of a tree; and others, that they are deſtroyed by the young ſpring herbage. But the moſt probable conjecture is, that having devoured the vegetable productions of the country, and having nothing more to ſubſiſt on, they devour each other. Be this as it may, they are often found dead by thouſands, and their carcaſes have been known to infect the air for ſeveral miles round, and to produce very malignant diſorders. They ſeem alſo to infect the plants they have gnawed, for the cattle which feed in the places they have paſſed, frequently die ſoon after. The inhabitants have an opinion, as they do not know whence ſuch numbers proceed, that they fall with the rain.

The male is generally larger and more beautifully ſpotted than the female. They go in droves into the water; but no ſooner does a ſtorm of wind ariſe, than they are all drowned. The fleſh of the lemings is horrid food, and their ſkin, although covered with a beautiful fur, is of too little conſiſtence to be uſeful.

The Canadian Otter.

This otter, which is much larger than the common otter, muſt be a native of the north of Europe, as well as of Canada. It appears to be larger

larger and blacker than the common otter; but it is rather a variety than a diſtinct ſpecies.

The Seal.

This animal has its head round, like that of the human ſpecies: its ſnout is broad, like the otter's; its eyes large and elevated. It has hardly any external ſigns of ears: it has only two auditory paſſages in the ſides of the head: it has whiſkers about its mouth, and its teeth ſomewhat reſemble thoſe of the wolf: the tongue is forked at the point: the body, hands, and feet, are covered with a ſhort and briſtly hair. It has no legs, but two feet, or membranes, like hands, with five toes, terminated by an equal number of claws. Theſe membranes, which have the appearance of hands, are only larger and turned backwards, as if deſigned to unite with its very ſhort tail, which they accompany on both ſides. The body is thickeſt where the neck is joined to it, whence the animal tapers down to the tail like a fiſh. This amphibious animal, though of a very different nature from that of our domeſtic animals, yet ſeems to be ſuſceptible of a kind of education. It is fed by putting it often in water: it is taught to ſalute perſons with its head and its voice: it is accuſtomed to obey the call of its keeper, and gives many other ſigns of intelligence and docility.

The ſenſations of the ſeal are as perfect, and its ſagacity as quick, as thoſe of any other quadruped. Both the one and the other are ſtrongly marked by its docility, its ſocial qualities, its ſtrong inſtinct for its female, its great attention towards its young, and by its voice, which is more expreſſive, and more modulated, than in any other animal: its body is likewiſe firm and large. It is alſo ſtrong, and armed with very ſharp teeth and claws, and has many particular and ſingular advantages over any other animal we can compare with it. It endures both heat and cold, and feeds indifferently on graſs, fleſh or fiſh: it can live on ice, land, or in the water. This animal and the morſe are the only quadrupeds which deſerve the name of *Amphibious*, or which have the *foramen ovale* open, conſequently, they are the only animals which can exiſt without reſpiration, and to which the element of water is as agreeable as that of the air.

But theſe advantages, which are very great, are counterbalanced by imperfections ſtill greater. They may be ſaid to be deſtitute of the uſe of their fore-legs, or membranes; for they are almoſt entirely ſhut up within its body, while nothing appears but the extremities of them, which are furniſhed with five toes, ſcarcely moveable, being united together by a very ſtrong membrane. They might therefore more properly be called fins than feet, as they are more adapted for the purpoſe of ſwimming than walking, the hind-feet, indeed, being turned backwards, are entirely uſeleſs upon land. Hence when the animal is obliged to move, it drags itſelf forward like a reptile, and with an effort more painful; for it cannot twiſt itſelf about like the ſerpent, but lies like a lump on the earth, and by graſping whatever it finds in its reach, drags itſelf up the ſteepeſt ſhores, rocks, and ſhoals of ice. By this method it moves with ſuch a degree of ſwiftneſs, that a man cannot overtake it: it makes its way towards the ſea, and often, though wounded, baffles the huntſman.

The ſeal is a ſocial animal, and generally found in great numbers in the places they frequent. Their natural climate is the northern,

but they are alſo met with in temperate and even in hot countries; for they are ſeen on the ſhores of almoſt all the ſeas in the univerſe. The ſpecies alone ſeems to vary, and, according to the difference of climates, changes its colour and even its ſhape. We have ſeen ſome of theſe animals alive, and many of their ſkins have been ſent to us; out of which we have choſen two for our preſent ſubject: the firſt is, the ſeal of our European Sea, of which there are many varieties. The proportions of the body ſeem different from thoſe of any other, its tail being ſhorter, its body longer, and its claws larger; but theſe differences are not conſiderable enough to make it a ſeparate and diſtinct ſpecies. The ſecond, the ſeal of the Mediterranean and ſouthern ſeas, and which we preſume to be the *phoca* of the ancients, appears to be of another ſpecies, for it differs from every other, both in the quality and colour of the hair, which is almoſt black, whereas in the other kind it is grey and briſtly. Its teeth and ears are alſo different; and its arms, or fins, are ſituated more backward. Nevertheleſs, theſe diſagreements, perhaps, are only varieties owing to the climate, and not ſpecifical differences, though there are numbers of theſe animals to be met with in thoſe parts, larger, ſmaller, thicker, or thinner, and of hair coloured, according to their ſex and age.

The females of theſe animals bring forth in winter, and rear their young upon ſome ſand-bank, rock, or ſmall iſland, at ſome diſtance from the continent. When they ſuckle their young, they ſit upon their hinder legs, and they continue with their dam for twelve or fifteen days, after which ſhe brings them down to the water, teaches them to ſwim, and to procure their food by their own induſtry. As each litter, never exceeds three or four, ſo the animal's cares are not much divided, and the education of her young is ſoon completed. The young particularly diſtinguiſh the voice of their dam among the numerous bleatings of the old ones, and are perfectly obedient to her call. We are unacquainted with the time of the female's geſtation; but, if we judge from the time of their growth, the length of their lives, and the ſize of the animals, it will appear to be many months. The time alſo that intervenes, from their birth till they are full grown, being many years, they of courſe muſt live very long. I am of opinion, that theſe animals live upwards of an hundred years; for we know, that cetaceous animals in general live much longer than quadrupeds; and as the ſeal fills up the chaſm between the one and the other, it muſt participate of the nature of the former, and, conſequently live much longer than the latter.

The voice of the ſeal may be compared to the barking of an angry dog. When young, it has a ſhrill note, ſomewhat like the mewing of a cat. Thoſe that are taken early from their dams, mew continually, and will very often die ſooner than take the food that is offered them. Theſe animals in general, are of a courageous nature. It is remarked, that inſtead of being terrified at thunder and lightning, they are rather delighted, generally come on ſhore in tempeſts and ſtorms, and even quit their icy abodes to avoid the ſhock of the tempeſtuous waves. At ſuch times, they ſport in great numbers along the ſhore: the tremendous conflict ſeems to divert them, and the heavy rains that fall appear to enliven them. They have naturally a diſagreeable ſcent, and when there are great numbers together, it is ſmelt at a great diſtance. It

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often happens, that when purſued, they drop their excrements, which are of a yellow colour, and which emit a moſt diſagreeable effluvia. As they have a prodigious quantity of blood, and are alſo greatly overloaded with fat, they are, conſequently of a very dull and heavy nature. They uſually ſleep ſoundly, and are fond of taking their repoſe on flakes of ice, or ſides of rocks, at which time, the huntſmen approach very near without diſturbing them. They are very ſeldom killed with fire-arms; for, as they do not immediately die, even if they are ſhot in the head, they plunge into the ſea. The general method therefore is, to ſurpriſe them when aſleep, and knock them on the head. "They are not eaſily killed, (ſays a modern traveller) for although they are mortally wounded, and their blood nearly exhauſted, and even ſtripped of their ſkins, yet they ſtill continue alive. Indeed, it is a diſagreeable ſight to ſee theſe animals wounded and ſkinned, wallowing and rolling about in their blood in the greateſt agonies. Theſe remarks were made on the animals we killed, which were about eight feet long, for, after they were ſkinned, and even deprived of a great part of their fat, they ſtill attempted to bite their butchers. One of them even ſeized a lance which was preſented to it, with as much eagerneſs as if it had not been wounded. Upon this we pierced it through the heart and liver, whence as much blood guſhed out as is contained in a young fox."

The Sea Lion.

To the ſpecies of ſeals as above deſcribed we may, with great propriety add another animal, deſcribed in Anſon's voyages, by the name of the *ſea lion*. They abound on the coaſts of the ſouth ſea. The ſea lion reſembles our ſea calf, which is very common in the ſame latitude, but they are much larger than any of the former, being from eleven to eighteen feet long, and from eight to eleven in circumference. It is ſo fat, that when the ſkin is taken off, the blubber is about a foot thick all round the body. About ninety gallons of oil is extracted from one of theſe animals: they are at the ſame time very full of blood, and when deeply wounded in many parts of the body, the blood ſpouts out with amazing power. The throat of one of theſe animals being cut, it afforded two barrels of blood, and there was ſtill ſome in its body. Its ſkin is covered with a ſhort hair of a browniſh colour, but blackiſh on the tail and feet. Their toes are united by a membrane which does not reach to their extremity; and each of the toes is known by a claw. The ſea lion differs from the ſeal, not only in its ſize and bulk, but alſo in ſome other reſpects. The male has a kind of thick comb or trunk hanging from the end of their upper jaw, about five or ſix inches long. This character is not ſeen in the female. The ſtrongeſt males collect a flock of females, and hinder the reſt from approaching them. Theſe animals are truly amphibious: they remain all the ſummer in the ſea, and go on ſhore in winter, at which ſeaſon the females bring forth their young, but never above one or two at a litter, which they ſuckle, like the ſeal.

The ſea lions, while they are on ſhore, feed on the graſs by the ſides of the ſea. They are of a very heavy and drowſy nature, and delight to ſleep in the mire; but they are very wary, and commonly fix ſome as centinels near the place where they ſleep. It is ſaid too, that theſe centinels are very careful to awake them in caſe of imminent danger. Their voices are very ſhrill, and of various tones. Sometimes they grunt like hogs, and ſometimes they neigh like horſes. The males often

ten fight, and wound one another deſperately with their teeth. The fleſh of theſe animals is not diſagreeable to eat; particularly the tongue, which is as good as that of the ox. They are very eaſily killed, as they cannot defend themſelves, nor fly from their enemies. They are ſo heavy, that they move, and turn themſelves about very unwieldily. Thoſe who hunt them have only to guard againſt their teeth, which are very ſtrong.

By comparing other obſervations and accounts, the ſea lion of South America, appears to be nearly the ſame, with that found on the northern coaſts of the ſame continent. The great ſeal of the Canadian ſea, which Davis calls the ſea wolf, and which he diſtinguiſhes from the common ſea calf, might probably be nothing elſe but the lion. Their young, ſays this author, are larger and longer than our largeſt hog.

The Morſe, or Sea Cow.

The name of ſea-cow, by which the morſe is moſt generally known, has been very wrongly applied; becauſe the animal which it denotes has not the leaſt reſemblance to the land-cow. The denomination of ſea-elephant, which others have given it, is much better imagined, as it is founded on a ſingular and very apparent character. The morſe, like the elephant, has two large ivory tuſks, which project from the upper jaw. Its head alſo is formed, or rather deformed, like that of the elephant, and would entirely reſemble it in that part if it had a trunk; but the morſe is deprived of that inſtrument which ſerves the elephant inſtead of an arm and hand, and has real arms to make uſe of. Theſe members, like thoſe of the ſeal, are ſhut up within the ſkin, and nothing appears outwardly but its hands and feet. Its body is long and tapering, thickeſt towards the neck. The whole body is cloathed with a ſhort hair: the toes, and the hands, or feet, are covered with a membrane, and terminated by ſhort and ſharp-pointed claws. On either ſide of the mouth are large briſtles in the form of whiſkers. Its tongue is hollowed, the concha of the ears are wanting, ſo that, except the two great tuſks, and the cutting teeth, which it wants above and below, the morſe in every other particular perfectly reſembles the ſeal. It is only much larger and ſtronger, the morſe being commonly from twelve to ſixteen feet in length, and eight or nine in circumference. The largeſt ſeals are on the other hand, ſeven or eight feet. The morſes alſo are generally ſeen to frequent the ſame places as the ſeals are known to reſide in, and are almoſt always found together. They have the ſame habitudes in every reſpect, only that there are fewer varieties of the morſe than the ſeal. They likewiſe are more attached to one particular climate, and are rarely found except in the northern ſeas.

"According to Zordrager, morſes and ſeals abounded formerly in the bays of Horiſont and Klock, but at preſent there are very few. Both theſe animals quit the water in the ſummer, and reſort to the neighbouring plains, where there are flocks of them from eighty or two hundred, particularly morſes, which remain there, till hunger obliges them to return to the ſea. This animal externally reſembles the ſeal, but it is ſtronger and much larger. Like the ſeal, it has five toes to each paw, but its claws are ſhorter, and its head thicker and rounder: its ſkin is thick, wrinkled, and covered with very ſhort hair of different colours: its upper jaw is armed with two teeth about half an ell or an

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ell long. Theſe tuſks, which are hollow at the root, become larger as the animal grows older. Some of them are found to have but one, the other being torn out in their mutual hoſtilities, or perhaps fallen out through age. This ivory generally brings a greater price than that of the elephant, as it is of a more compact and harder ſubſtance. The mouth of this animal is like that of the ox, and furniſhed with hairs which are hollow, pointed, and about the thickneſs of a ſtraw. Above the mouth are two noſtrils, through which the animal ſpouts the water like a whale. There are a great number of morſes towards Spitzbergen, and the profit that is derived from their teeth and fat fully repays the trouble; for the oil is nearly of an equal value with that produced from the whale. When the huntſman is near one of theſe animals in the water, or on the ice, he darts a very ſtrong harpoon at it, which often ſlips over its hard and thick ſkin; but if it has penetrated into it, they haul the animal towards the boat, and kill it with a very ſharp and ſtrong lance. The morſe is generally heavier than the ox, and as difficult to purſue as the whale, the ſkin of which is more eaſily pierced, and a ſtrong and ſharp lance is often darted ſeveral times at the morſe without penetrating it. For this reaſon, they always endeavour to aim at its eyes. The animal, obliged by this motion to turn its head, expoſes its breaſt to the huntſman, who immediately ſtrikes it and retracts the lance as quick as poſſible, for fear it ſhould ſeize the lance with its teeth, and wound thoſe that attack it. Before theſe animals were ſo greatly perſecuted, they advanced ſo far on ſhore, that when it was high water, they were at a great diſtance from the ſea; and at low water, being at a ſtill greater, the huntſmen eaſily killed great numbers of them. The huntſmen, in order to cut off their retreat to the ſea, and after they had killed ſeveral, made a kind of barrier of their dead bodies, and in this manner, often killed three or four hundred, in a ſeaſon. The prodigious quantity of bones to be found on the ſhores, ſufficiently prove how numerous theſe animals were in former times. When they are wounded, they become extremely furious, often biting the lances in pieces with their teeth, or tearing them out of the hands of their enemies. At laſt however, when they are ſtrongly engaged, they put their head betwixt their paws, or fins, and in this manner roll into the ſea. When there is a great number together, they are ſo bold as to attack the boats that purſue them, to bite them with their teeth, and to exert all their ſtrength to overturn them."

We find the morſe can live, at leaſt for ſome time, in a temperate climate. We do not know how long it goes with young, but if we judge by the time of its growth and ſize, we may ſuppoſe it to be above nine months. The morſe cannot continue in the water for a long time together, and is obliged to go on ſhore to ſuckle its young, and for other occaſions. When they meet with a ſteep ſhore, or pieces of ice to climb up, they make uſe of their tuſks to hold by, and their feet to drag along the heavy maſs of their body. They are ſaid to feed upon the ſhell-fiſh which are at the bottom of the ſea, and to grub them up with their ſtrong tuſks. Others ſay, that they live on the broad-leaves of a certain vegetable which grows in the ſea, and that they eat neither fleſh nor fiſh. But I imagine, that the morſe, like the ſeal, lives on prey, eſpecially herring and other fiſh; for it does not eat when

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upon land, and it is chiefly hunger which obliges it to return to the ſea.

The Dugon.

The dugon is an animal which inhabits the African and Indian ſeas. Some travellers have confounded it with the ſea lion, and other travellers ſeem to have pointed it out by the name of the ſea bear; Spilberg and Mandelſo relate, "that there are animals on the iſland of St Elizabeth, on the coaſt of Africa, which ſhould rather be denominated ſea bears than ſea wolves, as their hair, colour and head, greatly reſemble thoſe of that animal; the ſnout only being more pointed. They alſo move alike with their fore legs, but drag the hind ones after them. In other reſpects theſe amphibious animals have a frightful appearance, and do not ſhew any fear at the ſight of man. Their teeth are ſo very ſtrong, as to enable them to bite through the ſtock of an halberd, and although their hind legs appear crippled, yet they are able to move with ſuch ſwiftneſs, that it is very difficult to overtake them." "Le Guat alſo ſpeaks of having ſeen a ſea cow of a reddiſh colour, near the Cape of Good Hope; its body was round and thick, its eyes full and large, its teeth or long tuſks, and its muzzle were turned a little upwards."

The Manati.

This animal may be indiſcriminately called the laſt of beaſts or the firſt of fiſhes. It can neither be called a quadruped nor a fiſh. It partakes of the fiſh by its two feet or hands, but it has no hind legs. Inſtead of two ſhort feet and a ſmall narrow tail, which is placed in an horizontal direction in the morſe, the manati has only a thick tail, ſpread out broad like a fan. Oviedo ſeems to be the firſt who has given any ſort of hiſtory or deſcription of the manati: he ſays, "it is a very clumſy and miſhapen animal, the head of which is thicker than that of an ox, the eyes ſmall, and the two feet or hands are placed near the head for the purpoſe of ſwimming. It has no ſcales, but it is covered with a ſkin or rather a thick hide with a few hairs or briſtles: it is a quiet animal, and feeds upon the herbage by the river ſides, without entirely leaving the water, ſwimming on the ſurface of it to ſeek its food. The huntſmen practiſe the following method to take the manati; they row themſelves in a boat or raft as near the animal as poſſible, and dart a very ſtrong lance into it, to the end of which a very long cord is faſtened. The manati feeling itſelf wounded, inſtantly ſwims away, or plunges to the bottom. The cord however, which holds the lance, has a cork or piece of wood faſtened to the end of it, to ſerve as a buoy. When the animal begins to grow faint and weak through the loſs of blood, it ſwims to ſhore. The cord is then wound up, and the animal drawn near to the boat, where they diſpatch it in the water by ſtrokes of the oar or lance. It is ſo very heavy, as to be a ſufficient load for two oxen to draw; its fleſh is very good, which they eat rather as beef, than as fiſh. Some of theſe animals are above fifteen feet long by ſix broad. The body becomes narrower towards the tail, and then ſpreads gradually broader towards the end. As the Spaniards, adds Oviedo, give the appellation of hands to the feet of quadrupeds, and as this animal has only fore feet, they have given it the name of *manati*, i. e. an animal with hands. The female has breaſts placed forward like thoſe of a woman, and ſhe generally brings forth two young ones at a time, which ſhe ſuckles. The fleſh and fat of this animal

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(ſays M. de Condamine) are very like veal. It is not, properly ſpeaking, amphibious; for it never leaves the water entirely, having only two flat fins, cloſe to the head, about ſixteen inches long, and which ſerve it inſtead of arms and hands. It only raiſes its head out of the water to feed on the herbage by the ſea-ſide. Its eyes have no proportion to the ſize of its body; the orifice of its ears is ſtill leſs, and only ſeems like a hole made by a pin. The manati is not peculiar to the Amazonian river; for it is not leſs common in Oroonoko. It is found alſo, though leſs frequently, in the Oyapoc, and many other rivers in the environs of Cayen, and the Coaſt of Guiana, and probably, in other parts."

The manati ſpecies, however, is not confined to the ſeas and rivers of the New World, but is alſo found in thoſe of Africa

CHAP. XXI.

OF MONKIES—THE ORANG-OUTANG—THE PIGMY—THE GIBBON, OR LONG-ARMED APE—THE MAGOT.—THE BABOON—THE MANDRIL.—THE WANDEROW AND LOWANDO—THE MAIMON.—THE MACCACO AND EGRET—THE PATAS—THE MALBROUCK AND CHINESE BONNET—THE MANGEABY—THE MONA—THE CALLITRIX—THE MUSTACHE—THE TALAPOIN—THE DOUC—AMERICAN MONKIES—THE WARINE AND ALOUATTA—THE COAITA AND EXQUIMA—THE CAPUCHIN MONKEY—THE WEEPER—THE ORANGE MONKEY—THE SUKI—THE TAMARIM—THE WESTITI—MARIKINE—THE PINCH—THE MICO.

The Orang-outang, or the Pongo and the Jocko.

THIS animal is called orang-outang in the Eaſt Indies; *Pongo*, at Louando, a province of Congo; and Kukurlacks in ſome parts of the Eaſt Indies. We ſhall preſent the orang-outang and the jocko together, becauſe they are, probably, but the ſame ſpecies. We have ſeen the ſmall orang-outang, or the jocko, alive, and we have preſerved its ſkin, but we can only ſpeak of the pongo, or great orang-outang, from the accounts travellers have given us of it. Battel aſſures us, "that, except his ſize, the pongo is exactly like a man in all his proportions. He is as tall (he ſays) as a giant: his face is like that of a man, the eyes deep ſunk in the head, the hair on each ſide extremely long, the viſage, the ears and hands, are without hair. The body is lightly covered, and ſcarcely differing from that of a man, except that there are no calves to the legs. Still, however, the animal, is ſeen to walk on his hinder legs. He ſleeps under trees, and builds himſelf a hut, which ſerves to protect him againſt the ſun and the rains of the tropical climates, of which he is a native. He lives only upon fruits, and is not carnivorous. He cannot ſpeak, although furniſhed with greater inſtinct than any other animal of the brute creation. When the Negroes make a fire in the woods, this animal comes near and warms himſelf by the blaze. He has not, however, ſkill enough to keep the flame alive by feeding it with fuel. They go together in companies, and

and if they happen to meet with one of the human ſpecies, remote from ſuccour, they ſhew him no mercy. They even attack the elephant, which they beat with their clubs, and oblige to leave that part of the foreſt which they claim as their own. It is impoſſible to take any of theſe creatures alive, they are ſo ſtrong. None of this kind, therefore, are taken, except when very young, and then only when the female happens to leave them behind; for, in general, they cling to the breaſt both with legs and arms. There are two kinds of this animal both very like the human race, the pongo, which is larger than a man; and the jocko, which is far leſs. The apes of Guinea, (ſays Boſman) which are called *Smitten* by the Flemings, are of a brown colour, and grow to a very large ſize. I have ſeen ſome above five feet tall. Theſe apes are of a very diſagreeable appearance, as well as thoſe of another kind, which reſemble them in every particular, except in ſize, which is a fourth part leſs than that of the former. They are very eaſily taught to do almoſt whatever their maſters pleaſe." Schouten ſays, "That the animals which the Indians call orang-outangs, are almoſt all of the ſame ſize and ſhape as men, but that their back and loins are covered with hair, of which however there is a deficiency in the fore part of the body. The ſame author adds that the females have two breaſts; that the face is rough, the noſe flat, and the ears like thoſe of a man; that they are robuſt, active, bold, and defend themſelves even againſt armed men; that they are paſſionately fond of women. Hence the fair ſex ſhould not paſs through the wood which they inhabit, as theſe animals immediately attack and injure them." To theſe teſtimonies we may add that M. de la Breſſe, mentioned in his Voyage to Anjou. This traveller aſſures us, "that the orang-outangs, which he calls *Quimpeazes* often attempt to ſurprize the female negroes. I knew (ſays he) a woman of Louango that had lived among theſe animals for three years. They grow from ſix to ſeven feet high, and are of unequalled ſtrength. They build ſheds and make uſe of clubs for their defence. Their faces are broad, their noſes flat, their ears without a tip, their ſkins are fairer than thoſe of Mulattoes, but they are covered on many parts of their body with long and tawny-coloured hair. Their belly is extremely large, their heels flat, and yet riſing behind about half an inch: they ſometimes walk erect, and ſometimes upon all four when they are phantaſtically diſpoſed. We purchaſed two of them, a male about fourteen months old, and a female about twelve."

The orang-outang which I ſaw, walked always erect, even when it carried heavy burthens. Its air was melancholy, its deportment grave, its nature more gentle and very different from that of other apes. Unlike the baboon, or the monkey, whoſe motions are violent, and appetites capricious; who are fond of miſchief, and only obedient through fear, a look was ſufficient to keep it in awe. I have ſeen it ſhow the company to the door, that come to ſee it, and it would walk about gravely with them, as if one of them. I have ſeen it ſit at table, unfold its napkin, wipe its lips, make uſe of the ſpoon and the fork to convey the victuals to its mouth, pour out its drink into a glaſs, touch glaſſes when invited, take a cup and ſaucer and lay on the table, put in ſugar, pour out its tea, and leave it to cool before drinking. It was gentle and inoffenſive. It even approached ſtrangers with reſpect, and came rather to receive careſſes than to offer injuries. It ate almoſt of

every

every thing that was offered to it, but it preferred dry and ripe fruits to every thing elſe. It would drink wine, but in ſmall quantities, and willingly left it for milk, or any other ſweet liquor. Mr L. Broſſe, who bought two young ones that were but a year old from a negro, relates that, "even at that age they ſat at table, ate of every thing without diſtinction, made uſe of their knife, ſpoon, and fork. They drank wine and other liquors. We carried them on ſhip-board, and when they were at table, they made ſigns to the cabin-boys expreſſive of their wants. Whenever they neglected attending upon them as they deſired, they inſtantly flew into a paſſion, ſeized them by the arm, bit them, and kept them down. The male was ſea ſick, and required attendance like an human creature: blood was twice let in his right arm; and every time afterwards when he found himſelf indiſpoſed, he ſhewed his arm, as if deſirous of being relieved by bleeding."

Henry Groſe relates, "that theſe animals are met with to the north of Coromandel; that Mr Horne, governor of Bombay had two of them ſent him, a male and a female. They were ſcarcely two feet high, but their form was entirely like the human. They walked erect upon their two feet, and were of a pale colour, without any hairs on any other part than where mankind generally have them. Their actions perfectly reſembled thoſe of men, and their melancholy plainly evinced how ſtrongly they felt the weight of their captivity. They made their bed very carefully in the cage in which they were ſent on board the ſhip. When any perſon looked at them, they hid thoſe parts with their hands, which modeſty dictates to conceal. The female (adds he) died on board, and the male was ſo ſincerely affected, that he refuſed his food, and did not ſurvive her above two days."

Francis Pyrard relates, "that in the province of Sierra Leona, in Africa, there are a kind of apes called *Barris*, which are ſtrong and muſcular, and ſo very induſtrious, that, if properly fed and inſtructed when young, they ſerve as very uſeful domeſtics. They uſually walk upright, will pound at the mortar, draw water from the river in a little pitcher, which they carry on their heads; but, if care be not taken to receive the pitcher at their return, they let it fall to the ground, and then, ſeeing it broken, they begin to lament the loſs."

The Pithecos or Pigmy.

From the teſtimony of the ancients, the pithecos was the moſt gentle and docile of all the monkey kind that was known to them. It was common in Aſia, as well as in Lybia, and in the other provinces of Africa, frequented by the Greek and Roman travellers. And this has inclined me to think, that we muſt refer the animals mentioned by Leo the African, and Marmot, to this kind. "Theſe animals (ſays Marmot) have feet and hands, and if I may be allowed the expreſſion, a human face, with an appearanee of much vivacity and malice. They live upon corn, herbage, and all ſorts of fruits; to obtain which they ſally forth in large bodies, and plunder the gardens or villages. Before they venture out on this expedition, one of the company aſcends an eminence, and ſurveys the environs. If there is no appearance of any perſon near, he makes ſigns to his companions to enter the vineyard or orchard, and begin their plunder: but as ſoon as the centinel perceives any body coming, he inſtantly ſets up a loud cry, and the whole company ſcampers off with the utmoſt precipitation, and jumping from tree

to tree, retreat to the mountains. It is a great curioſity to ſee theſe animals retreat; for the females carry four or five young ones upon their backs, and with this heavy load leap with great agility from branch to branch, though great numbers of them are taken notwithſtanding all their cunning. When they are angry, they bite; but while they are coaxed, they are very tame. Thoſe that are tamed, perform wonders, and imitate mankind in almoſt whatever they ſee them do." The pithecos has no tail; its canine teeth are not proportionably longer than thoſe of mankind; its face is flat, as is likewiſe its nails, which are rounded at top, like thoſe of a man; it walks erect, is about a cubit high, and of a gentle and tractable diſpoſition.

The Gibbon, or Long-armed Ape.

The gibbon always is erect, even when it walks upon all fours, its arms being as long as both its body and legs. We have ſeen one of theſe animals alive; it was but young, and not above three feet high; though we muſt preſume, that it had not attained its full ſize, but that when it is adult, and in its free ſtate, it is at leaſt four feet. It had no appearance of any tail: it had a circle of grey buſhy hair round the face, which gave it a very remarkable appearance. Its eyes were large and ſunk in its head; its face was ſomewhat like that of a man, and its ears were well proportioned. This ape appeared to us to be of a gentle and tractable diſpoſition; its motions were neither raſh, nor precipitate. It was fed on bread, fruit, almonds, &c. and calmly received the food that was preſented to it: it was very averſe to cold and wet weather, and did not live long after being brought from its native country. It is a native of the Eaſt-Indies, and almoſt peculiar to the coaſts of Coromandel, Malacca, and the Molucca iſlands.

The Magot.

Of all the apes which have no tail, this animal can beſt endure the temperature of our climate. We have kept one theſe many years. In the ſummer, it remained in the open air with pleaſure; and in the winter, might be kept in a room without any fire.

It was filthy, and of a ſullen diſpoſition. It equally made uſe of grimace to ſhew its anger, or expreſs its ſenſe of hunger. Its motions were violent, its manners awkward, and its phiſiognomy rather ugly than ridiculous. Whenever it was offended, it grinned and ſhewed its teeth. It put whatever was given to it into the pouches on each ſide of its jaws, and commonly eat every thing that was offered to it, except raw fleſh, cheeſe, and whatever was of a fermentive nature. When it ſlept, it was fond of rooſting on a wooden or iron bar. It was always kept chained, for, notwithſtanding its long ſubjection, it was neither civilized, nor fond of its keeper. It appeared to have been but badly educated, for I have ſeen others of the ſame kind who were more ſagacious, obedient, gayer, and ſo tractable as to be taught to dance, and ſuffer themſelves quietly to be clothed and dreſſed.

This ape is about two feet and an half, or three feet high, in its erect poſture; but the female is not ſo large as the male. It rather chuſes to walk on all fours, than erect. When it ſleeps, it is almoſt always ſitting. There are two very prominent calloſities on its poſteriors. It differs alſo from the *pithecos;* firſt, in the form of its ſnout, which is thicker and longer, like that of a dog; whereas, the pithecos has a flat viſage, like the human. Secondly, in having long canine teeth; inſtead

inſtead of which the pithecos has them no longer in proportion than thoſe of a man. Thirdly, in its nails, which are neither ſo flat nor ſo round; and, in ſhort, it is larger, and of a more ſullen and untractable diſpoſition than the other.

It is probably, this kind of monkey which Robert Lade ſpeaks of in the following terms: "We travelled over a great mountain at the Cape of Good Hope, where we diverted ourſelves with hunting the large apes, with which it abounds. I am not able to repreſent all the tractableneſs of theſe animals which purſued us, nor the ſwiftneſs and impudence with which they returned to us after we had driven them away. Sometimes they ſuffered us to approach ſo near them, that, ſtopping almoſt cloſe to one of them to take my obſervations, I thought myſelf certain of ſecuring him, when, taken a ſudden leap, he ſprang above ten paces from me, and climbed up a tree with the greateſt agility. They remained afterwards very quiet, and looked at us as if they were pleaſed with our aſtoniſhment. There were ſome ſo exceedingly large, that if they had been of a ferocious nature, our number would not have been ſufficient to ſecure us from their attacks. As it would have been needleſs to have killed theſe animals, we made no uſe of our guns; but the captain, thinking to wound one of them, which was ſeated on a tree, after a long purſuit, had no ſooner preſented his piece, but the animal, probably from the remembrance of the execution of ſome of his companions in the ſame manner, was ſo greatly terrified at it, that it fell almoſt motionleſs at our feet, and being ſtunned in the fall, we had not the leaſt trouble to ſecure it. When it revived, however, we had occaſion for all our ſtrength and addreſs to keep it, defending itſelf by biting thoſe who were near it, which obliged us to bind our handkerchiefs over its head."

The Baboon.

The Baboon, properly ſo called, has a pouch on each ſide of its cheeks. It has calloſities on its poſteriors, which are naked and of a red colour. Its tail is crooked and thick, and about ſeven or eight inches long. The canine teeth are much thicker and longer than thoſe of men. Its ſnout is very thick and very long; its ears naked: its body and limbs are ſtrong, thick, and ſhort. Its hair is long and thick, of a reddiſh brown colour, and pretty uniform over the whole body. It walks oftener on all fours than upright, and is from three to four feet high; but there ſeem to be different ſizes of theſe animals. The female brings forth uſually but one at a time, which ſhe carries in her arms, and in a peculiar manner clinging to her breaſt. In other reſpects, theſe baboons, although miſchievous and ferocious, are not carnivorous; for they feed principally upon fruits, roots, and corn; they generally herd together, and ſally forth to commit their depredations on the neighbouring vineyards, or orchards. "As they are extremely fond of grapes, apples, and ripe fruit, they aſſemble together in great numbers, and proceed on their enterprize with previous deliberation. The dogs that are ſet on watch, do not eaſily conquer theſe animals, as they are extremely active, and make dextrous uſe of their teeth and claws. On theſe occaſions, a part of them enter the incloſure, while one of the company ſtands centinel. The reſt ſtand without the fence, a ſmall diſtance from each other, and form a line, reaching all the way from the incloſure to the rendezvous without, which is generally in

ſome craggy mountain. Every thing being thus diſpoſed, the plunderers within the orchard throw the fruit to them without as faſt as they can gather it. But if the wall or hedge be high, they heave it up to thoſe that ſit at the top, and theſe hand the plunder to thoſe next their ſide.

The Mandril.

This baboon is an ugly, diſguſting animal. Excluſive of its noſe it has two noſtrils, from which a thick matter continually iſſues. Its muzzle is ſtill longer than the preceding; it is of a blueiſh colour, and ſtrongly ſeamed with wrinkles, which ſtill increaſes its frightful and loathſome appearance.

This baboon is found on the Gold Coaſt, and in other ſouthern provinces of Africa, where the Negroes call it *Boggo*, and the Europeans *Mandril*. This animal is the largeſt of the baboon kind. Smith ſays, that a female mandril was given to him, which was not above ſix months old, and had then attained the ſize of an adult baboon. He likewiſe informs us, that theſe animals walk always erect; that they ſigh and cry, like the human ſpecies; that they have a violent paſſion for the female ſex; and that they never fail to overcome them, if they find them within their reach.

The Wanderow, and the Lowando.

As theſe two animals ſeem to be but one ſpecies, we have, therefore, here preſerved the two names they bear in Ceylon, as they at leaſt form two diſtinct breeds. The body of the wanderow is covered with brown and black hairs, and has a long white head of hair, and a monſtrous white beard. The body of the lowando, on the contrary, is covered with whitiſh hairs, but has the like large head of hair and beard. There is ſtill a third variety found in the ſame country, which may, poſſibly, be the common ſtock of the other two, becauſe it is white over its body, with the like head of hair and beard. Theſe animals are baboons, and not, as ſome have imagined, monkeys, as they have all the characters, as well in ſhape as in diſpoſition, and are of the ſame ſavage nature, and even more ferocious.

"The white monkies (ſays Forbin) are ſometimes as big as the largeſt Engliſh maſtiff. They are more dangerous than the black. They principally attack women, and often, after having greatly injured them, finiſh their cruelty by ſtrangling. Sometimes they even come to their houſes; but the Macaroes, who are very jealous of their wives, take care to prevent their entrance into their habitations; and the females not liking (as the chevalier humorouſly relates) either the manners or the figure of the paltry gallants, boldly ſtand on their defence, and with clubs, or whatever other arms they can provide, inſtead of indulging their careſſes, oblige their ugly ſuitors to retreat.

The Maimon.

The maimon has pouches on each ſide of its cheeks, and calloſities on its poſteriors. Its tail is naked, curled up, and about the length of five or ſix inches: the canine teeth are not much longer in proportion than thoſe of men: the ſnout is very broad: the orbits of the eyes very acute above: the face, ears, hands, and feet, are naked, and of a fleſh colour: the hair of a dark olive on the body, and of a yellowiſh colour on the belly: it ſometimes walks erect, and at other times upon all fours: it is about two feet, or two feet and an half tall when erect.

The

The Macacco, and the Egret.

Of all the apes, or monkies, with long tails, the macacco approaches neareſt the baboon; its body being ſhort and compact, like that animal. Its head thick, its ſnout broad, its noſe flat, its cheeks wrinkled, but it is bulkier and taller than moſt other monkies. It is alſo ſo very ugly, that it may well be looked upon as a ſmaller kind of the baboon, if it did not differ in the tail, which is crooked, but longer and tufted; whereas that of the baboon, is, for the moſt part, extremely ſhort. This ſpecies is a native of Congo, and other ſouthern parts of Africa. It is numerous, and ſubject to many varieties with reſpect to its ſize, colour, and diſpoſition of the hair. The body of that deſcribed by Haſſelquiſt, was more than two feet long; and thoſe which we have ſeen, were not above one foot and an half. That which we here term the *Egret*, becauſe of the plume on its head, ſeems to be only a variety of the firſt, which it perfectly reſembles, except the difference before mentioned, and ſome other ſlight varieties in the hair. Both of them are tractable and docile; but, independent of the ſcent which they diffuſe around them, they are ſo miſhapen, and even ſo hideous that they are real objects of horror and diſguſt. Theſe monkies go in flocks. Baſman relates, that they take a melon in one of their hands, another under their arms, and one in their mouths, which they carry off. If the purſuit is hot, they drop firſt that from under their arm, then that from their hand; and if it be continued, they at laſt let fall that which they had hitherto kept in their mouths. In other reſpects, ſays this traveller, they examine the melon beds carefully, and what does not pleaſe them they throw away, and tear up others. Hence they greatly injure many of the orchards and vineyards by their depredations.

The Patas.

The Patas, is a native of the ſame country, and is nearly of the ſame ſize as the macacco, the body being only ſomewhat longer, the face not ſo ugly, and the hair fairer. It is, indeed, of ſo brilliant a red, that the animal looks as if it were painted. I am inclined to think, that the monkey ſpoken of by Marmot, and ſaid to be of the colour of the wild cat, and to be a native of Africa, is only a variety in the patas ſpecies. Theſe animals are not ſo ſubtle as others of their kind, but are poſſeſſed of an extreme curioſity. "I have ſeen them (ſays Bruce) deſcend from the top to the branches of very high trees, to view the veſſels on the water, which they admired for ſome time, and ſeemed diverted with what they had ſeen. After this they quitted their ſtations for their companions to have the ſame ſight. Some even threw the branches of the trees at the French, who returned their ſalute with a muſket ball; ſome were killed, others wounded, and others fell to the ground in the utmoſt conſternation. One part uttered moſt hideous cries, while another was picking up ſtones to throw at their enemies, and a third were occupied in the eaſing of nature into their hands, which they inſtantly diſcharged againſt the ſpectators; but perceiving at length, how unequal the battle was, they deſiſted, and prudently retreated."

The Malbrouck, and the Chineſe Bonnet.

Theſe two monkies, or apes, with a long tail, ſeem to belong to one ſpecies; and this ſpecies, although ſomewhat different from that of the macacco,

macacco, ſtill gives us reaſon to ſuppoſe the macacco, egret, malbrouck, and the bonet chinois, to be only four varieties.

Theſe animals are found in Bengal, where travellers informs us, they plunder whole fields of grain, and plantations of ſugar canes; and whilſt one ſtands centinel on a tree, the others load themſelves with the booty. But if the owner of the field, or plantations, appear to interrupt their depredations, their faithful companion on the look out, gives notice by crying out *houp*, *houp*, *houp*, which the reſt perfectly underſtand. Upon this they throw down their plunder, which they hold in their left hands, ſcamper off on their three legs, holding the remainder in their right, and ſave themſelves from their purſuers by climbing up trees, where they have their general abode. The females, even loaded with their young ones, claſp them cloſe to their breaſt, leap like the others from branch to branch, and eſcape with the reſt. When they cannot find any proviſion in the fields, they get on the tops of houſes, and having pulled off the tiles, do great damage to the inſide. They do not eat a ſingle thing without ſmelling it for a long time before hand, and when they have ſatisfied their hunger, they put the remainder in the pouches on the ſides of their cheeks for the next day. They deſtroy the neſts of birds, and never fail to throw the eggs on the ground when they want appetite or inclination to eat them.

The moſt formidable enemy theſe animals have, is the ſerpent, no other animal of the foreſt being able to ſurprize them, as they are ſo exceedingly ſwift and ſubtle, and eaſily climb up and ſeat themſelves on the tops of the higheſt trees. The monkey, ſays a traveller, "has in its power to be maſter of the foreſt, for there are neither tygers nor lions which can diſpute the poſſeſſion with it. The chief animal it has to fear, and which attack them both night and day is the ſnake. There are ſome ſnakes in thoſe foreſts of a prodigious ſize, which wind up the trees where the monkies reſide, and when they happen to ſurprize them ſleeping, devour them in an inſtant."

The malbrouck has pouches on each ſide of its cheeks, and calloſities on its poſteriors: its tail is very near as long as the body and head put together. The eyelids are of a fleſhy, and the face of an aſh colour; the ears are large, thin, and of a fleſh colour. They have a ſtripe of grey hairs on them like the mona; but in other parts they are of an uniform colour, approaching towards a brown on the upper parts of the body, and towards a grey on the lower. It goes on all fours, and is about a foot or a foot and an half long from the ſnout to the inſertion of the tail.

The chineſe bonnet ſeems to be a variety of the malbrouck. It differs from it however, in the hair on the crown of its head, which is diſpoſed in the ſhape of a cap or flat bonnet, and in its tail, which is large.

The Mangabey.

We have ſeen two of this kind, both of which were ſent to us by the denomination of *Madagaſcar monkies*. The mangabey has its eyelids naked, and of a ſtriking whiteneſs. It has pouches on each ſide of its cheeks, and calloſities on its poſteriors. Its tail is as long as the head and body put together, and it has a prominent roll of hair over its eyes. Its ſnout is thick and long, its eyebrows rough and briſtly; its ears black and almoſt naked. The hair of the upper parts of its body is brown

brown and thoſe below are grey. There is a variety in this ſpecies, ſome being of an uniform colour, and the others having a circle of white hair round the neck, and the form of a beard round their jaws. They walk on all fours, and are near a foot and an half long from the ſnout to the tail.

The Mona, or varied monkey.

The mona, or varied monkey, is the moſt common of the monkey tribe. We kept one of them alive ſeveral years. This alone is ſufficient to prove it is not a native of the hot countries of Africa and India. In fact, it is met with in Barbary, Arabia, Perſia. &c. The viſage of this animal is of a brown hue, with a kind of white beard, mixt with yellow and a little black. The back is red and black; the belly and the hind parts of the thighs and legs whitiſh, though the fore parts of the two laſt are of a black colour. The tail is of an aſh colour, marked with two white ſpots, one on each ſide, at its inſertion. On its forehead the hair is of a grey colour, in the form of a creſcent, and between the eyes and the ears is a black ſtripe, as there is from the ears to the ſhoulders and arms.

The monkey is for the moſt part far more docile than the baboon, and not ſo ſullen as the ape. It is extravagantly ſpirited, but not ferocious. The mona is in particular ſuſceptible of education, and even attached to thoſe perſons who take care of it. The one which we reared would ſuffer itſelf to be handled by thoſe it knew, but would often bite ſtrangers. It was chained, but was deſirous of its liberty; for, when it either broke its chain, or got looſe, it would run away, and would not ſuffer itſelf to be re-taken by any other perſon than its maſter. It ate every thing that was offered to it, eſpecially fleſh, bread, and its favourite food, fruits. The mona is about a foot and a half long.

To the animals which we have juſt deſcribed, may be added,

The Callitrix, or Green monkey.

The callitrix, or green monkey, which is of a beautiful green colour, with a black face. He is found in Mauritania, Senegal, Cape de Verd, &c. and is about 15 inches long.

The Muſtache, or white Noſe.

It has always two tufts of yellow under the ears, which give it a ſingular appearance. Its body is of a greeniſh aſh colour; it is not above 13 inches long, and is a native of Guinea.

The Talapoin.

The talapoin, which is a native of India. Its colour is a mixture of duſky green and yellow; and it is about 17 inches.

The Douc.

The douc, has a long tail, but is diſtinguiſhed from all the monkeys of the Old World by having hair on its buttocks. Its colour is varied. Round its neck there is a purple collar; a white beard ſurrounds its cheeks; its face and ears are red; the top of its head and body, are grey; the breaſt and belly, yellow. It is about 4 feet long.

Of the Monkey Tribe in America.

All the four-handed animals which we have given a deſcription of, and which we have comprehended under the generic names of Apes, Baboons, and Monkies, belong to the Old Continent only. All thoſe which remain to be ſpoken of, are, on the contrary, only found in the New

New World. We here diſtinguiſh them by two generic names, as we can divide them into two claſſes; the firſt into that of the SAPAJOU, and the ſecond into the SAGOIN. Both theſe animals have their feet nearly like thoſe of the ape and monkey kind, but they differ from the ape in having tails. The ſapajou has a very long tail, which it makes uſe of to ſeize and lay hold of things, and by which it ſuſpends itſelf from the branches of trees. The tail of the ſagoin, on the contrary, is longer than that of the ſapajou, but is weak and ſtrait. Hence they cannot make uſe of it either to lay hold of any thing, or for the purpoſe of climbing. This difference is ſo very apparent, that it is alone ſufficient to diſtinguiſh the ſapajou from the ſagoin.

The Warine and the Allouatto.

The warine and the alouatto are the largeſt of theſe animals belonging to the New Continent: they are larger than the largeſt monkey, and approach the ſize of the baboon. They have a long tail, and are, likewiſe, of the ſapajou family, in which they hold a very diſtinct rank, not only with regard to ſize, but alſo with reſpect to voice, which ſounds like a drum, and may be heard at a very great diſtance. "Marcgrave informs us, that every morning and evening the *warines* and the *alouattos* aſſemble in the woods; that one among them ſeats himſelf on an elevated place, makes a ſign with his hand to the reſt to ſeat themſelves round him. As ſoon as he ſees them all ſeated, he begins an oration with ſo quick and loud a voice, that, at a diſtance, it might be imagined they were all making a noiſe together. During the whole diſcourſe the reſt keep a profound ſilence, and when it is ended, he makes a ſignal to the reſt to anſwer him. Upon this they all ſet up a cry together, till by another ſign with his hand, he orders them to be ſilent: when they are immediately obedient and quiet. Then the firſt renews his diſcourſe, or his ſong, which, when finiſhed, and the others have paid the utmoſt attention to it, the whole aſſembly breaks up and ſeparates." "According to the ſame author, the face of the *warine* is broad, the eyes black and ſparkling, the ears ſhort and round, the tail naked at the extremity, with which it holds firmly whatever it encircles. The hair of the body is black, long, and gloſſy; it is much longer under the chin, which forms a kind of round beard. The hair on the hands, feet, and a part of the tail, is brown. The male is of the ſame colour as the female, and only differs from it in being a little larger. The females carry their young on their backs, and thus loaded, leap from branch to branch, and from tree to tree. The young one claſps the narroweſt part of the body of the dam with its hands and arms, and thus holds itſelf firmly faſtened. In other reſpects, theſe animals are wild and miſchievous; they can neither be tamed nor ſubdued, and they bite dreadfully. As they live only on fruit, grain, and ſome inſects, their fleſh is not unpalatable. It is like that of the hare, but a little ſweetiſh. The fat is yellow, like that of the capon, and of a very fine flavour. They eaſily faſten upon the branches of trees, and ſtick either by their hands, feet, or tail, wherever they touch. This renders it very difficult to take them, even after they are ſhot, for if they are only wounded, they will not fall to the ground, but cling to ſome branch, and remain on the tree where they are ſhot, till they drop off by putrefaction. What appears ſingular is, that the moment one of them is wounded, the reſt aſſemble round, and clap their fingers into the wound,

wound, as if they were deſirous of ſounding its depth. If it be deep, they keep it ſhut up, while others get leaves, which they, chew and thruſt into the orifice. The females only bringing forth one at a time."

The alouatto has the ſame characters as the warine, and only ſeems to differ from it in having no beard, and a reddiſh-coloured hair, whereas, that of the warine is black.

The Coaita and the Exquima.

Next to the warine and the alouatto, the coaita is the largeſt of the ſapajous. I ſaw one alive at the Duke of Bouillon's, where, by its familiarity and forward careſſes, it merited the affection of thoſe who had it under their care; but in ſpite of the good treatment and attention paid to it, it could not reſiſt the winter of 1764. It differs greatly in diſpoſition from the warine and the alouatto, which are wild and untameable. It alſo differs from them in having but four fingers and no thumb to the fore paws. By this, and its tail, it is eaſily diſtinguiſhed from the monkey kind.

The animal which Marcgrave calls *Exquima*, is of nearly the ſame ſpecies with the *coaita*, and, perhaps, is only a variety of it. I have learned, that there are both black and white coaitas, the one beardleſs, and the others with a beard. "There is (ſays Dampier) in the Iſthmus of America, great numbers of monkies, ſome of which are white, but the moſt part black—ſome have beards, others none. Theſe monkies are very droll, and perſormed a thouſand groteſque poſtures as we traverſed the woods. When they are unable to leap from one tree to another, on account of the diſtance, their dexterity is very ſurprizing. The whole family form a kind of chain, locking tail in tail, or hand in hand, and one of them holding the branch above, the reſt ſwing down, balancing like a pendulum, until the undermoſt is enabled to catch hold of the lower branches of ſome neighbouring tree. When the hold is fixed below, the monkey lets go that which was above, and thus comes undermoſt in turn; but, creeping up along the chain, attains the next branches, like the reſt; and thus, they all take poſſeſſion of the tree without ever coming to the ground."

They have the addreſs to break the ſhell of the oyſters to eat them. They generally produce only one or two young at a time, which they carry upon their backs: they feed upon fiſh, worms, and inſects, but fruit is their general food, and they grow fat when it is ripe. Their fleſh is then ſaid to be exquiſite.

The coaita is about a foot and an half long, and its tail is longer than the head and body meaſured together: it goes on all fours.

The exquima is nearly of the ſame ſize with the coaita: it has not, however, black hair over all the body, but it varies in its colour. There are ſome black and brown on the back, and white on the belly, with a very remarkable beard.

The Sajou, or Capuchin Monkey.

We are acquainted with two varieties in this ſpecies; the brown ſajou, commonly called the *Capuchin Monkey;* and the grey ſajou, which only differs from the other in the colour of its hair. They are both lively, active, and very pleaſing by their tricks and nimbleneſs. They are, however, fantaſtical in their taſtes and affections: they ſeem to have a ſtrong affection for ſome people, and as great an averſion at others.

The Sai, or Weeper.

We have ſeen two of theſe animals, which ſeem to make a variety in the ſpecies. The hair of the firſt is of a deep brown colour; the hair of the ſecond, which we have called the *White throated Sai*, is white on the breaſt, neck, ears, and jaws. Travellers have denominated theſe animals *Howlers*, from their plaintive moan. Others have called them *Muſk Monkies*, from their having like the macacco, that peculiar ſmell. They belong to the ſapajou family, as they have a holding tail: they have only two teats, and bring forth but one or two at a time. They are gentle, docile, and ſo timorous, that their common cry, which reſembles that of a cat, is dwindled down to a kind of ſighing when they are threatned. Their food, in this climate, is principally ſnails and beetles, which they prefer before any other. In their native country of Braſil, however, they live chiefly upon grain, and the wild fruit they pluck from trees, whence they very ſeldom deſcend, till they have ſtripped their habitation of its treaſure.

The Saimiri.

The Saimiri is commonly known by the name of the *Golden, Orange-coloured*, or *Yellow Sapajou*. It is frequent in Guiana. By its air, ſize, the brilliant colour of its coat, fulneſs and brightneſs of its eyes, and its ſmall, round viſage, the ſaimiri has ever taken the lead of every other ſapajou. It is, in fact, the moſt beautiful and delicate of the kind, and the moſt difficult to tranſport and preſerve in other countries. Its tail, without being abſolutely uſeleſs and weak, like that of the ſagoin, is alſo not ſo muſcular as that of the ſapajou. Its tail may be ſaid to be but half-holding; and though it uſes it in climbing trees, yet it can neither ſtrongly hold, nor firmly fix itſelf with it. It is ſcarcely more than ten or eleven inches. It ſits long erect on its hinder feet with great eaſe; but it walks commonly on all fours.

The Saki.

The Saki, commonly called the *Fox-tailed Monkey*, from its tail being clothed with very long hair, is the largeſt of the ſagoin kind, being about ſeventeen inches long. The ſize of the five other ſagoins on the other hand, is not above nine or ten. The ſaki has very long hair on its body, and ſtill longer on its tail. Its face is red, and covered with a whitiſh down.

The Tamarin, or Great-eared Monkey.

The Tamarin, or Great-eared Monkey, is much ſmaller than thoſe we have juſt deſcribed (being about ſeven or eight inches long), and differs from them in many characters, particularly in the tail, which is cloathed only with ſhort hair; whereas, that of the ſaki is furniſhed with long hair. The body, head and tail, are covered with dark drown, briſtly hair; and it is remarkable for the largeneſs of its ears, and its yellow feet. It is a lively animal, very eaſily tamed, but ſo exceedingly delicate as not to be able to reſiſt our climate long.

The Wiſliti, or ſtriated Monkey.

The name of this animal is taken from the ſound of its voice. It is ſmaller than the tamarin, being not above ſix inches long, and its tail more than twice that length, which is annulated black and white, like that of the macacco. Its face is naked, and of a fleſh colour. It has two very ſingular tufts of long white hair on the fore part of the ears, which, although very large, cannot be ſeen by looking at its full face.

Mr

Mr Edwards ſays, that, when it thrives well, it has much hair and tufted; that one of thoſe which he ſaw, and which was healthy, fed on biſcuits, fruit, pulſe, inſects, ſnails, &c. He adds that being one day unchained, he ſtruck at a little gold-fiſh which was in a glaſs globe, killed it, and devoured it with the greateſt avidity; that afterwards, ſome ſmall eels being put before him, he was frightened when they twiſted about his neck, but that he ſoon diſpatched them. Theſe animals, when young, have an ugly appearance, having ſcarcely any hair on their bodies. They cling cloſely to the teats of their dam; and as they grow older, they faſten themſelves to her back or ſhoulders. When ſhe is weary of carrying them, ſhe releaſes herſelf by rubbing againſt the wall.

The Marikina.

The Marikina is ſufficiently known by the vulgar name of the Small Lion Monkey. It is about eight inches long, and has a ſmall tuft of hair at the end of the tail: its hair is tufted, long, ſoft, and gloſſy: the head is round: the face is brown: the eyes red: the ears round, naked, and concealed under the long hair which encompaſſes the face. This hair is of a bright red: that on the body and tail, of a very pale yellow, approaching towards white. This animal is of the ſame diſpoſition with other ſagoins, and ſeems to be of a more robuſt temperament. We have ſeen one which lived five or ſix years at Paris, by keeping it, during the winter, in a chamber, wherein a fire was kept every day.

The Pinch.

The Pinch is about nine inches long; and its tail is twice that length. It is remarkable for a kind of white and ſtriped hair on the top and ſides of the head: its face is black, ſhaded by a ſmall grey down: its eyes are black, its tail of a bright red at its inſertion, and even as far as half its length, where it changes to a deep brown. The hair of the upper parts of the body is of a brown colour: that of the breaſt, belly, hands, and feet, is white: the ſkin is black, even where covered with white hair: its throat is naked, and black, like its face; its voice is ſoft, and reſembles more the pipe of a little bird, than the cry of an animal: it is very delicate, and cannot be tranſported from America into Europe, without the greateſt precaution.

The Mico.

We owe the knowledge of this animal to M. de la Condamine, and ſhall therefore give this author's account of it, in his Voyage up the Amazonian River. "The Mico which the Governor of Para made me a preſent of, was the only one of its kind that had been ſeen in the country. The hair of its body was of the moſt beautiful ſilver colour, and its tail of a gloſſy nature, approaching towards a black. It had another more remarkable ſingularity. Its ears, jaws, and ſnout, were tinctured with ſo bright a vermilion, as ſcarcely to be thought natural. I have had it a year; and it was living at the time I was writing this account, almoſt within ſight of the French coaſt, when I hoped to have brought it alive; but, notwithſtanding the continual precautions that I took to preſerve it from the cold, yet the rigour of the ſeaſon probably killed it."

CHAP. XXII.

THE TARTARIAN COW—THE TOTAI.—THE ZISEL.—THE ZEMNI.—THE POUCH.—THE PEROUASCA.—THE SOUSLIK.—THE GOLDEN-COLOURED MOLE.—THE WHITE WATER RAT.—THE GUINEA HOG.—THE WILD BOAR OF CAPE VERD.—THE MEXICAN WOLF.—THE ALCO.—THE TAYRA.—THE PHILANDER OF SURINAM.—THE AKOUCHI.—THE TUCAN—THE BRASILIAN FIELD MOUSE.—THE APEREA.—THE TAPETI.—A VIEW OF THE ANIMALS PECULIAR TO EACH CONTINENT.

The Tartarian Cow.

MR Gmelin, in the new Memoirs of the Royal Academy at Peterſbourg, has given the deſcription of this animal, which ſeems, at firſt ſight, to be a quite different ſpecies from all thoſe we have ſpoken of under the article of buffalo. "This cow," ſays he, "which I ſaw alive, and had painted in Siberia, came from Calmuchia, and was about the length of two Ruſſian ells and an half. The body reſembles that of the common cow; the hair on the body is black, except on the forehead and ſpine of the back, where it is of a white colour. The neck is covered with a mane, and all the reſt of the body with a very long hair, which deſcends to the knees, ſo that the feet appear very ſhort. The back is raiſed in the form of a hunch: the tail reſembles that of a horſe, white, and well clothed with hair: the fore feet are black, and the hinder ones are white: there are two tufts of long hair, one before, and the other behind. The excrements are of a more ſolid nature than thoſe of the common cow; and it grunts like a hog. It is wild, and even ferocious; for, excepting the man who feeds it, it buts all thoſe who approach it: and it diſlikes the company of domeſtic cows."

The Totai.

This animal, which is very common in Baikel Lake, in Tartary, is a little larger than a rabbit, which it reſembles in ſhape, quality, ſmell, and the colour of the hair, and alſo in the habit of burrowing in the earth to conceal itſelf. It differs only in the tail, which is conſiderably longer than that of the rabbit.

The Ziſel.

The ziſel is ſmaller than the hamſter. Its body is long and ſlender, like the weaſel; whilſt on the other hand, that of the hamſter is thick and compact, like that of the rat. It has no external ears, but only auditory paſſages concealed under the hair. The ziſel is of a greyer, or of a more uniform colour, than the hamſter; and the latter is marked in the fore part of its body with three large white ſpots on each ſide. Thoſe differences, added to that of their not mixing together, though natives of the ſame country, are ſufficient to convince us that they are two different ſpecies.

The Zemni.

There is another animal in Poland and Ruſſia, which is called *zeimni*, or *zemni*, of the ſame race with the *ziſel*, but larger, ſtronger, and more miſchievous. It is ſomewhat ſmaller than the domeſtic cat; its head is large, its body ſlender, and its ears are ſhort and round. Theſe have four great inciſive teeth; but the two in the lower jaw are thrice as long

long as the two in the upper. The feet are very ſhort and hairy, divided into five toes, and armed with crooked claws: the hair is ſoft, ſhort, and of a mouſe colour: the tail is moderately large: its eyes are ſmall and hid, like thoſe of the mole. Its diſpoſition and habitudes are nearly the ſame as thoſe of the hamſter and ziſel: its bite is dangerous: it eats greedily, and plunders orchards and gardens: it burrows; and lives upon grain, fruit and pulſe, which it ſtores in magazines for winter.

The Pouch.

The Pouch is larger than the domeſtic rat: its ſnout is long; and it burrows, and commits depredations in the gardens, &c. There are ſuch numbers near Suraz and Volhinia, that the inhabitants were obliged to abandon the culture of their gardens.

The Perouaſca.

There is alſo in Ruſſia and Poland, eſpecially in Volhinia, an animal which the Ruſſians call *Perewiaſka*, and the Polanders *Pizewiaſka*; a name which we may tranſlate the *cinctured weaſel*. This animal is not ſo large as a pole-cat, covered with a whitiſh hair, tranſverſally ſtriped of a reddiſh colour, which appear as ſo many girdles. It inhabits the woods, and burrows in the earth; its ſkin makes a very beautiful fur.

The Souſlik.

There is found at Caſan, and in the provinces which the Volga pervades, a ſmall animal, called *Souſlik* in the Ruſſian tongue, of which very beautiful furs are made. Its tail is ſhort, like that of the field-mouſe; but what diſtinguiſhes it from the field-mouſe and every other rat, is its coat, which is of a greyiſh hue, with ſmall ſpots of a gloſſy and bright white colour. Theſe little ſpots are exceedingly ſmall, near each other; they are more apparent upon the loins of this animal, than on the ſhoulders and head. "The rats called *Souſliks*," ſays M. Sanchez, "are taken in great numbers on the ſalt veſſels in the river *Kama*, which falls into the Volga below Caſan. They come down from Salikamſkia, where the ſalt pits are. The Volga, from Simbuſki to Somtoff, is covered with theſe ſalt veſſels. Theſe animals are named *ſouſlik*, i. e. *dainty-mouthed*, becauſe they are very fond of ſalt."

The Golden-coloured Mole.

Not to omit any animals that belong to the North, we ſhall take notice of a kind of mole found in Siberia, called the *Golden-coloured Mole*, the ſpecies of which may be different from the ordinary mole, becauſe the Siberian has no tail. Beſides it has a ſhort ſnout; red and green hair; with only three toes to the fore feet, and four to the hinder; whereas, the common mole has five toes on every foot.

The White Water Rat.

The European water rat is again ſeen in Canada, but its colour is different. Its back is only brown; the reſt of the body is white and brown. The head, the ſnout, and the extremity of the tail are white. The hair ſeems ſofter and more gloſſy than that of our water rat; but they are alike in every other reſpect. Hence we conclude theſe two animals to be of the ſame ſpecies; the whiteneſs of their hair being produced by the coldneſs of the climate.

The Guinea Hog.

The Guinea Hog is nearly of the ſame figure with our hog, and about the ſame ſize as the Siam hog; that is, ſmaller than our boar,

or hog. It is a native of Guinea, and has been tranſported into Braſil, where it has multiplied, as in its native country. It is domeſtic and tame: its hair is ſhort, red and gloſſy: it has no briſtles, not even on the back: only the tail, and the crupper near it, are covered with longer hair than the reſt of the body. Its head is not ſo large as that of our hog; and its ears are very long, and turned backwards over its neck: its tail is as much longer, almoſt touching the ground; and it has no hair towards its extremity.

The Wild Boar of Cape Verd.

There is another hog, or wild boar, at Cape Verd, which, by the number of its teeth, and enormous ſize of its two tuſks of the upper jaw, appears to be of a different breed, and perhaps of a different ſpecies, from every other hog, and approaches near the Babirouſſa. Theſe tuſks reſemble ivory horns, rather than teeth. They are half a foot long, and five inches round at the baſe, and are crooked nearly like the horns of a bull.

The Mexican Wolf.

The Mexican Wolf has the ſame figure, the ſame appetites, and the ſame habitudes, as the European or Northern American wolf; and every thing contributes to prove them to be one and the ſame ſpecies. Its head, however, is larger, its neck thicker, and the tail not ſo hairy. Above the mouth, there are ſome thick briſtles, but not ſo rough as thoſe of the hedge-hog; the body is covered with greyiſh hair, marked with ſome white ſpots. The head, which is of the ſame colour as the body, is croſſed with brown ſtripes; and the forehead is adorned with fallow-coloured ſpots. The ears are of a grey colour, like the head and body. There is a long ſpot, of a fallow colour, on the neck; a ſecond ſpot, like the firſt, on the breaſt; and a third on the belly. The flank is marked with cloſe tranſverſal ſtripes, from the back to the belly. The tail is grey, and marked with a fallow ſpot on the middle: and the legs are ſtriped, from top to bottom, of a grey and brown colour. This wolf is the moſt beautiful of the kind; and its fur is highly valued.

The Alco, or Mexican Dog.

Beſides the dogs, ſays Fernandez, which the Spaniards have tranſported into America, we met with three other ſpecies there, which reſemble our dog, both in nature and manners, and which are not very unlike it in form. The firſt, and the longeſt of theſe American dogs, is that called *Xoloigtcuintli*. What is particularly remarkable in theſe animals, is, their being without hair, and only covered with a ſoft, cloſe ſkin, marked with yellow and blue ſpots. The ſecond is clothed with hair, and, with reſpect to its ſize, ſufficiently reſembles our little Malta dogs. It is marked with white, black and yellow; it is ſingular by its deformity, having a hunched back, and a very ſhort ſnout; ſo that the head ſeems to ſhoot immediately out of the ſhoulders; it is called *Micuacanens*, from the name of its country. The third kind of theſe dogs, called *Techichi*, is ſufficiently like our little dogs; but its look is dull and ſavage. The Americans eat their fleſh. The word *Alco* appears to be a generic term.

The Tayra, or Galera.

The Tayra, or Galera, is about the ſize of a ſmall rabbit, and reſembles the weaſel or the ferret. It burrows like thoſe animals; and its fore feet are very ſtrong, but conſiderably ſhorter than the hinder ones.

ones. Its ſnout is elongated, a little pointed, and adorned with a whiſker. Its body is oblong, and greatly reſembles that of a rat: it is covered with brown hair, ſome of which are pretty long, and others much ſhorter. This animal reſembles the ſpecies of ferret, or pole-cat. Linnæus, with ſome reaſon, ſuppoſes, that the black weaſel of Braſil is alſo found in Guiana, where it is called *Tayra.*

The Philander of Surinam.

This animal belongs to the ſame climate, and has an affinity with the ſariga, marmoſe, cayopollin and phalanger. It has very ſparkling eyes, ſurrounded with a circle of deep brown hair. The body is covered with a ſoft hair, or rather a kind of wool, of a reddiſh colour, which is fair on the back, and of a yellowiſh colour on the ſnout, forehead, belly and feet. The feet reſemble the hands of the ape; the fore feet having four fingers and a thumb, with ſhort and obtuſe nails. The thumb or great toe of the hinder feet, however, is flat and obtuſe, the reſt being armed with ſmall, ſharp claws. The young of theſe animals grunt ſomewhat like a pig: they get on the back of their dam, and fix themſelves there, by faſtening their tails to her's. In this ſituation, which is familiar to them, they are carried both ſafely and ſwiftly.

The Akouchi.

The Akouchi is common in Guiana, and other parts of South America. It differs from the agouti by having a tail. The akouchi is generally ſmaller than the agouti; and its hair is not red, but olive.

The Toucan, or Mexican Shrew.

The toucan, or Mexican ſhrew, is a little larger than our mole, and, like it, is fat and fleſhy, with ſo very ſhort legs, that its belly touches the ground. Its tail is ſhort: its ears are ſmall and round: its eyes are ſo very ſmall, that they may be ſaid to be uſeleſs; but it differs from the mole in the colour of its hair, which is reddiſh, and by the number of toes, having only three to the fore, and four to the hind feet. It differs from our mole ſtill farther, by the good quality of its fleſh.

The Field-Mouſe of Braſil.

The field-mouſe of Braſil is conſiderably larger than our mouſe being about five inches from the extremity of the ſnout to the inſertion of the tail, which is only two inches, and conſequently, much ſhorter in proportion than that of the common field-mouſe. Its ſnout is pointed, and its teeth are very ſharp.

The Aperea.

This animal, which is found in Braſil, is neither a rabbit nor a rat; yet it ſeems to participate ſomewhat of the qualities of both. It is about a foot long, by ſeven inches in circumference. The hair is of the ſame colour with that of our hares, but white upon the belly. It has alſo, like that animal, a ſlit lip, large inciſive teeth, and a whiſker about the mouth; but its ears are rounded, like thoſe of a rat. The fore legs are only three inches high; but thoſe behind are longer. The aperea has no tail: its head is a little longer than that of the hare, and its fleſh is like that of a rabbit, which it reſembles in its method of living. It conceals itſelf in holes, but does not burrow like a rabbit, but rather retires into the cavities of the rocks and ſtones. We may add that it is very eaſily taken.

The

The Tapeti.

I am not far from imagining the tapeti to be a variety of the ſpecies of the rabbit or hare. It is found at Braſil, and other parts of America. It reſembles the European rabbit in figure, and the hare in ſize and colour: its ears are very long, and of the ſame ſhape: its hair is red on the forehead, and whitiſh on the throat. Some have a circle of hair round their neck: they are all white on the throat, breaſt and belly: they have black eyes, and whiſkers like the rabbit, but they have no tail. The tapeti reſembles the hare in its method of living, in its fecundity, and in the quality of its fleſh, which is excellent food. It lives in the fields, or woods, like the hare, and does not burrow in the manner the rabbit does.

Having given ſo full a hiſtory of quadrupeds, very little ſeemed neceſſary to be added for completing the natural hiſtory of that claſs of animals.

The number of diſtinct ſpecies of quadrupeds, according to Buffon and Dr Goldſmith, amounts to about two hundred.—Later authors have enumerated two hundred and eighty.

As the ſubjects of the hiſtory were few, a diſtinct and accurate claſſification appeared unneceſſary; and we have therefore purſued the order of M. De Buffon, who regarded this ſcholaſtic method of treating natural hiſtory, as liable to great objections, and, as more likely to produce confuſion in the mind of the ſtudent, than to aſſiſt his memory.

On one topic only we ſhall enlarge a little.—It has been frequently intimated, that a material difference exiſts between the animals of the Old and the New continent. While America far exceeds us in the ſize of its reptiles, it comes far ſhort of us in its quadruped productions. The truth is, many of the inhabitants of the New continent differ ſo widely from thoſe of the Old, that, though we have generally noted the country of the animal we have deſcribed, yet we conceived, that it might not be unacceptable to the reader, if we endeavoured to exhibit a ſynopſis of the quadrupeds which are peculiar to each continent.—In purſuing this plan, we have made two columns; the one for Europe, Aſia and Africa; the other for America. When we have found an animal of the New continent reſembling nearly that of the Old, we have placed it oppoſite in the ſame line; and we have placed in the middle, thoſe which are common to both.

Europe,

Europe, Asia and Africa.	America.
Elephant	
Rhinoceros	
Hippopotamus	Tapir
Camel	Lama
Dromedary	Paco
Cameleopard	
Lion	Puma
Tiger	Jaguar
Panther	Couguar
Leopard	Jaguarette
Ounce	Mountain Cat
Zebra	
Horſe, Aſs	Though not originally found there, horſes and aſſes now abound in America.
Ox, Buffalo	Theſe alſo are now numerous.
	Biſon
Sheep, Goat	Theſe alſo are now produced in America.
Hog	Now produced there.
	Peccary
Guinea Hog	Now produced there.
Dog	Now produced there.
	Alco
	Goſchis
Hyæna	
Jackall	
	Wolf
Genet	
Civets	A ſpecies of them is ſaid to have been found there originally.
Cat	Now produced there.
Antelope	
Guinea Stag	
Chamois	
Ibex	
Muſk	
Rabbit	Now produced there.
	Tapeti
Ferret	
Rat	Now produced there.
	Aperea.
Mouſe	Braſilian Field Mouſe
Fat Squirrel	
Garden Squirrel	
Marmot	
Ichneumon	
Badger	
Sable	
Ermine	

Europe, Asia and Africa.	America.
Jerboa	
Maki	
Several ſpecies of Monkeys - -	Sapajou and Sagoin
	Racoon
	Cabiai
	Tajacou
Pangolin and Phatagin - - -	Ant-Eaters
	Sloth
Rein Deer - - - - - - - - -	Cariacou
	Couandou
	Agouti
	Coati
	Opoſſum
	Pacos
	Indian Hog
	Cavy
	Armadillo
	Ternat Bat
Stag	
Bear	
Roebuck	
Hare	
Squirrel	
Hedge-hog	
Otter	
Marmot	
Shrew Mouſe	Mexican Shrew
Mole	
Beaver	
Wolf	Mexican Wolf
Fox	
Weaſel	Tayra
Ermine	
Pine Weaſel	
Pole Cat	
Lynx	
Seal	
Roebuck	
Elk	
Pouch	
Deſman - - - - - - - - -	Ondatra

Of the 200 ſpecies of quadrupeds which Buffon ſuppoſes to exiſt, he makes about 90 original inhabitants of the Old continent, and about 70 of the New, and thinks that 40 may be accounted common to both.

CHAP.

CHAP. XXIII.

OF BIRDS IN GENERAL.—OF THE OSTRICH—THE EMU—THE CASSOWARY—THE DODO—OF RAPACIOUS BIRDS—THE EAGLE—THE CONDOR—THE VULTURE—THE FALCON AND OTHER HAWKS—THE BUTCHER-BIRD—THE DIFFERENT SPECIES OF OWLS.

ONE obvious mark of diſtinction between this claſs of animals and that of quadrupeds is, that inſtead of hair, birds are covered with feathers, and appear to be nouriſhed in a different manner from the hair of animals. Leſt the feathers ſhould be injured by expoſure to the air, the bird is furniſhed with a gland ſituated on its rump, containing a proper quantity of oil, which it preſſes out with its beak, and with which it occaſionally anoints its feathers. In water fowl this oil is ſo plentiful that it even imparts a degree of rancidity to the fleſh, and we ſee that their coat of feathers is rendered by it completely water-proof.

The wings of birds are remarkably ſtrong. The flap of a ſwan's wing would break a man's leg, and a blow from the wing of an eagle has been known to lay a man dead in an inſtant.

The ſenſe of ſeeing in birds is remarkably acute, and though they have no external ear, but only two ſmall orifices or ear-holes, yet they do not appear to be deficient in hearing. The ſcent of ſome ſpecies is exquiſitely delicate. In decoys where ducks are caught, the men who attend them generally keep a piece of turf lighted, on which they breathe, leaſt the fowl ſhould ſmell them and fly away. The voice of birds is much louder in proportion to their ſize than that of other animals, for in fact, the bellowing of an ox is not louder than the ſcream of a peacock.

The legs, the wings, the bones, and every part of the body, are much lighter, firmer, and more compact in birds than in other creatures. Their lungs are extended all over the cavity of their body.

Carnivorous birds, like carnivorous quadrupeds, have but one ſtomach, but that well calculated for digeſtion. Thoſe that feed on grain have in addition to the crop or ſtomach, where their food is moiſtened and ſwelled, a gizzard, which is a very hard muſcle, almoſt cartilaginous, and which they commonly fill with ſmall ſtones, where the food is afterwards ground, that it may be completely digeſted. Birds are ſubject to few diſeaſes.

Birds of the ſame ſpecies do not always make their neſts of the ſame materials, though in general there is a uniformity. The red-breaſt in ſome parts of England makes its neſt with oak leaves where thoſe leaves are plenty, in other parts it makes it with moſs and hair. Where the eggs are numerous it is neceſſary to make the neſt warm. Hence the wren, which is a ſmall animal, and able to cover but a ſmall compaſs, and yet lays many eggs, makes her neſt remarkably warm. On the contrary the plover, the eagle, the crow, &c. which lay but two or three, are not equally ſolicitous in this reſpect.

There are ſome birds which are called birds of paſſage, and which by migrating make an habitation in all parts of the earth; but in general every climate has birds peculiar to itſelf. In all countries birds are

much longer lived than quadrupeds. The ſwan is ſaid to live near three hundred years. They are however greatly inferior to quadrupeds in ſenſe and docility.

As the number of ſpecies in this order of animals is very numerous, amounting to above eight hundred, ſome degree of claſſification appears to be abſolutely neceſſary. We ſhall therefore adopt the ſix claſſes of Linnæus, without purſuing his order in too ſervile a manner; and ſhall deſcribe at leaſt the principal birds in each claſs. After a ſhort account of the oſtrich, the emu, the caſſowary and the dodo, we ſhall proceed to the birds of the rapacious claſs.

The Oſtrich.

The Oſtrich is the largeſt of all birds. The head and bill ſomewhat reſemble thoſe of a duck; and the neck may be likened to that of a ſwan, but that it is much longer. The legs and thighs reſemble thoſe of an hen; though the whole appearance at a diſtance bears a ſtrong reſemblance to that of a camel, it is generally ſeven feet high from the top of the head to the ground; but from the back it is only four. Hence the head and neck are not above three feet long. From the top of the head to the rump, when the neck is ſtretched out in a right line, it is ſix feet long, and the tail is about a foot more. One of the wings, without the feathers, is a foot and an half; and being ſtretched out, with the feathers, is three feet.

The plumage is, generally black and white in all; though ſome of them are ſaid to be grey. The greateſt feathers are at the extremities of the wings and tail, and the largeſt are generally white. The next row is black and white; and of the ſmall feathers, on the back and belly, ſome are white and others black. There are no feathers on the ſides, nor on the thighs, nor under the wings. The lower part of the neck, about half way, is covered with ſtill ſmaller feathers than thoſe on the belly and back; and thoſe, like the former, alſo are of different colours. The head and upper part of the neck are covered with hair.

At the end of each wing, there is a kind of ſpur almoſt like the quill of a porcupine. It is an inch long, being hollow and of an horny ſubſtance. There are two of theſe on each wing; the largeſt of which is at the extremity of the bone of the wing, and the other a foot lower. The neck ſeems to be more ſlender in proportion to that of other birds, from the want of feathers.

The thighs are very fleſhy and large, being covered with a white ſkin, inclining to redneſs, and wrinkled in the manner of a net, whoſe meſhes will admit the end of a finger. Some have very ſmall feathers here and there on the thighs; and others again have neither feathers nor wrinkles. The legs are covered before with large ſcales. The end of the foot is cloven, and has two very large toes, which, like the leg, are covered with ſcales. Theſe toes are of unequal ſizes. The largeſt, which is on the inſide, is ſeven inches long, including the claw, which is near three-fourths of an inch long, and almoſt as broad. The other toe is but four inches long, and has no claws.

The oſtrich is a native only of the torrid regions of Africa. Its fleſh is proſcribed in Scripture; and moſt of the ancient writers deſcribe it as well known in their times. Like the race of the elephant it is tranſmitted down without mixture; and has never been known to breed out of that country which firſt produced it. It

prefers

prefers the moſt ſolitary and horrid deſarts, for its habitation where there are few vegetables to clothe the ſurface of the earth, and where a drop of rain never refreſhes it. The Arabians aſſert that the oſtrich never drinks; and the place of its habitation ſeems to confirm the aſſertion. In theſe formidable regions, oſtriches are ſeen in large flocks, which to the diſtant ſpectator appear like a regiment of cavalry, and have often alarmed a whole caravan. There is no deſart, how barren ſoever, but is capable of ſupplying theſe animals with proviſion. They eat almoſt every thing; and theſe barren tracts are thus doubly grateful, as they afford both food and ſecurity. The oſtrich is of all animals the moſt voracious. It will devour leather, graſs, hair, iron, ſtones, or whatever is given to it. Nor are its powers of digeſtion leſs in what is digeſtible. Thoſe ſubſtances which the coats of the ſtomach cannot ſoften, paſs whole. Hence glaſs, ſtones, or iron, are excluded in the form in which they were devoured. All metals, indeed, which are ſwallowed by any animal, loſe a part of their weight, and often the extremities of their figure, from the action of the juices of the ſtomach upon their ſurface. A quarter piſtole, which was ſwallowed by a duck, loſt ſeven grains of its weight in the gizzard before it was voided; and it is probable that a ſtill greater diminution of weight would happen in the ſtomach of an oſtrich. Conſidered in this light, therefore, this animal may be ſaid to digeſt iron; but ſuch ſubſtances ſeldom remain long enough in the ſtomach of any animal to undergo ſo tedious an operation. The oſtrich lays very large eggs; ſome of them being above five inches in diameter, and weighing above fifteen pounds. Theſe eggs have a very hard ſhell, ſomewhat like thoſe of the crocodile, except that thoſe of the latter are leſs and rounder.

The ſeaſon for laying in the northern parts of Africa is about the beginning of July; in the ſouth, it is about the latter end of December. Theſe birds are very prolific, and lay generally from forty to fifty eggs at one clutch. It has been commonly reported that the female depoſits them in the ſand; and, covering them up, leaves them to be hatched by the heat of the climate, and then permits the young to ſhift for themſelves. Very little of this however is true: no bird has a ſtronger affection for her young than the oſtrich, and none watches her eggs with greater care. It happens, indeed, in thoſe hot climates, that there is leſs neceſſity for the continual incubation of the female; and ſhe more frequently leaves her eggs, which are in no fear of being chilled by the weather. But though ſhe ſometimes forſakes them by day, ſhe always carefully broods over them by night; nor is it more true that they forſake their young after they are ſet free from the ſhell. On the contrary, the young are not even able to walk for ſeveral days after they are hatched. During this time; the old ones are very aſſiduous in ſupplying them with graſs, and very careful to defend them from danger. They even encounter every danger in their defence.

Beſides the value of their plumage, ſome of the ſavage nations of Africa, hunt them alſo for their fleſh; which they conſider as a dainty. They ſometimes alſo breed theſe birds tame in order to eat the young, of which the female is ſaid to be the greateſt delicacy; and a ſingle egg is ſaid to be a ſufficient entertainment for eight men.

As the ſpoils of the oſtrich are thus valuable, it is not to be wondered at that man has become their moſt aſſiduous purſuer. For this purpoſe,

poſe, the Arabians train up their beſt and fleeteſt horſes, and hunt the oſtrich. Perhaps, of all varieties of the chaſe, this, though the moſt laborious, is yet the moſt entertaining. As ſoon as the huntſman comes within ſight of his prey he puts on his horſe with a gentle gallop, ſo as to keep the oſtrich ſtill in ſight. At the ſame time however, he takes care not to terrify it from the plain into the mountains. Of all known animals that make uſe of their legs in running, the oſtrich is by far the ſwifteſt. Upon obſerving himſelf therefore purſued at a diſtance, he begins to run at firſt, but gently; either inſenſible to his danger, or ſure of eſcaping. In this ſituation he ſomewhat reſembles a man at full ſpeed. His wings, like two arms, keep working with a motion correſpondent to that of his legs; and his ſpeed would very ſoon ſnatch him from the view of his purſuers. Unfortunately, however, for the ſilly creature, inſtead of going off in a direct line, it takes its courſe in circles; while the huntſmen ſtill make a ſmall courſe within, relieve each other, meet it at unexpected turns, and purſue it in this manner for two or three days together. At laſt, quite exhauſted, and finding all power to eſcape impoſſible, it endeavours to hide itſelf from thoſe enemies it cannot avoid, and covers its head in the ſand, or the firſt thicket it meets. Sometimes, however, it attempts to face its purſuers: and, though in general the moſt gentle animal in nature, when driven to deſperation it defends itſelf with its beak, its wings and its feet.

The Emu.

Of the Emu, which many call the American oſtrich, but little is known. It is an inhabitant of the New Continent; and the travellers who have mentioned it, ſeem to have been more ſolicitous of proving its affinity to the oſtrich, than of deſcribing thoſe peculiarities which diſtinguiſh it from the reſt of the feathered creation.

It is chiefly found in Guiana, along the banks of the Oroonoko, in the inland provinces of Braſil and Chili, and the vaſt foreſts that border on the mouth of the river Plata. They are known to have been in many other parts of South America; but as its inhabitants increaſed, theſe large and timorous birds either fell beneath their ſuperior power, or fled from their vicinity.

The emu, though not ſo large as the oſtrich, is only ſecond to it in magnitude. It is by far the largeſt bird in the New Continent; and is generally found to be ſix feet high, meaſuring from its head to the ground. Its legs are three feet long; and its thigh is near as thick as that of a man. It is covered from the back and rump with long feathers, which are grey upon the back, and white on the belly. It goes very ſwiftly, and ſeems aſſiſted in its motion by a kind of tubercle behind, like an heel, upon which, on plain ground, it treads very ſecurely. In its courſe it uſes a very odd kind of action, lifting up one wing, which it keeps elevated for a time; till letting it drop, it lifts up the other. It runs ſo ſwiftly, that the fleeteſt dogs are thrown out in the purſuit. One of them, finding itſelf ſurrounded by the huntſmen, darted among the dogs with ſuch fury that they made way to avoid its rage; and it eſcaped, by its amazing velocity, in ſafety to the mountains.

When the young ones are firſt hatched, they are familiar, and follow the firſt they meet. I have been followed myſelf, ſays Wafer, by many

of

of theſe young oſtriches; which, at firſt, are extremely harmleſs and ſimple: but as they grow older, they become more cunning and diſtruſtful; and run ſo faſt, that a greyhound can ſcarcely outſtrip them. Their fleſh, in general, is palatable; eſpecially if they be young. It would be no difficult matter to rear up flocks of theſe animals tame, particularly as they are naturally ſo familiar. They might alſo be found to anſwer domeſtic purpoſes, like the hen, or the turkey. Their food could not be expenſive, if, as Narborough ſays, they live entirely upon graſs.

The Caſſowary.

The Caſſowary is a bird which was firſt brought into Europe by the Dutch, from Java, in the Eaſt-Indies, where it is only to be found.

The caſſowary, though not ſo large as the former, yet appears more bulky to the eye; its body being nearly equal, and its neck and legs much thicker and ſtronger in proportion. This conformation gives it an air of ſtrength and force, which the fierceneſs and ſingularity of its countenance conſpire to render formidable. It is five feet and an half long, from the point of the bill to the extremity of the claws. The legs are two feet and an half high, from the belly to the end of the claws. The wing is ſo ſmall, that it does not appear; being hid under the feathers of the back. In other birds, a part of the feathers ſerve for flight, and are different from thoſe that ſerve for mere covering; but in the caſſowary, all the feathers are of the ſame kind. They are generally double; having two long ſhafts, growing out of a ſhort one, which is fixed in the ſkin. The beards that adorn the ſtem or ſhaft, are from about half way to the end, very long, and as thick as an horſe-hair, without being ſubdivided into fibres. The ſtem or ſhaft is flat, ſhining, black, and knotted below; and from each knot there proceeds a beard. The beards too at the end of the large feathers are perfectly black; and towards the root they are of a grey tawny colour; ſhorter, ſofter and throwing out fine fibres, like down. Nothing therefore appears except the ends, which are hard and black; becauſe the other part, compoſed of down, is quite covered. There are feathers on the head and neck; but they are ſo ſhort, and thinly ſown, that the bird's ſkin appears naked, except towards the hinder part of the head, where they are a little longer. The wings, when they are deprived of their feathers, are but three inches long. The ends of the wings are adorned with five prickles, which differ both in reſpect of length and thickneſs, and which bend like a bow: theſe are hollow from the roots to the very points having only that ſlight ſubſtance within, which all quills are known to have. The longeſt of theſe prickles is eleven inches; and it is a quarter of an inch in diameter at the root, being thicker there than towards the extremity: the point ſeems to be broken off.

The part, however, which diſtinguiſhes this animal moſt is the head and which though ſmall, like that of an oſtrich, does not fail to inſpire ſome degree of terror. It is without feathers, and in a manner armed with a helmet of horny ſubſtance, that covers it from the root of the bill to near half the head backwards. This helmet is black before and yellow behind. Its ſubſtance is very hard, being formed by the elevation of the bone of the ſkull; and it conſiſts of ſeveral plates, one above another, like the horn of an ox. Some have ſuppoſed that this was ſhed every year with the feathers; but the moſt probable opinion is, that it only

only exfoliates ſlowly like the beak. To the peculiar oddity of this natural armour may be added the colour of the eye in this animal, which is a bright yellow, and the globe being above an inch and an half in diameter, give it an air equally fierce and extraordinary. At the bottom of the upper eye-lid, there is a row of ſmall hairs, over which there is another row of black hair, which are pretty like an eye-brow. The ſides of the head, about the eye and ear, being deſtitute of any covering, are blue, except the middle of the lower eye-lid, which is white. The neck is of a violet colour, inclining to that of ſlate; and it is red behind in ſeveral places, but chiefly in the middle. About the middle of the neck before, at the riſe of the large feathers, there are two projections formed by the ſkin, which are ſomewhat like the gills of a cock, with this difference, however, that they are blue as well as red. The ſkin which covers the fore-part of the breaſt, on which this bird leans and reſts, is hard, callous, and without feathers. The thighs and legs are covered with feathers, and are extremely thick, ſtrong, and ſtraight; but the legs are thicker a little above the foot than in any other place. The toes are covered with ſcales, and are but three in number; for that which ſhould be behind is wanting.

Thus formed for a life of hoſtility, one might naturally ſuppoſe that the caſſowary was one of the moſt terrible of animals. But nothing is ſo oppoſite to its natural character, nothing ſo different from the life it is contented to lead. It never attacks others; and inſtead of the bill, when attacked, it rather makes uſe of its legs, and kicks like an horſe, or runs againſt its purſuer, beats him down, and treads him to the ground.

The manner of going of this animal is not leſs extraordinary than its appearance. Inſtead of proceeding directly forward, it ſeems to kick up behind with one leg, and then making a bound onward with the other it advances with ſuch prodigious velocity, that the ſwifteſt racer would be left far behind.

The ſame degree of voraciouſneſs which we perceived in the oſtrich, obtains as ſtrongly here. The caſſowary ſwallows every thing that comes within the capacity of its gullet. The Dutch aſſert that it can devour not only glaſs, iron, and ſtones, but even burning coals, without the leaſt hurt. It is ſaid that the paſſage of the food through its gullet is performed ſo ſpeedily, that even the very eggs which it has ſwallowed whole, paſs through it unbroken, in the ſame form they went down. The caſſowary's eggs are of a grey aſh colour, inclining to green. The largeſt is found to be fifteen inches round one way, and about twelve the other.

The ſouthern parts of the moſt eaſtern Indies ſeems to be the natural climate of the caſſowary. His domain, if we may ſo call it, begins where that of the oſtrich terminates. The latter has never been found beyond the Ganges; while the caſſowary is never ſeen nearer than the iſlands of Banda, Sumatra, Java, the Molucca Iſlands, and the correſponding parts of the continent.

The Dodo.

The Dodo inſtead of appearing to be ſwift, ſeems to be moſt unwieldy and inactive. Its body is maſſive, almoſt round, and covered with grey feathers: it is juſt barely ſupported upon two ſhort thick legs like pillars. The neck, thick and purſy, is joined to the head, which conſiſts

ſiſts of two great chaps, that open far behind the eyes, which are large black and prominent. Hence the animal when it gapes ſeems to be all mouth. The bill therefore is of an extraordinary length, not flat and broad, but thick, and of a bluiſh white, ſharp at the end, and each chap crooked in oppoſite directions. From all this reſults a ſtupid and voracious phyſiognomy; which is ſtill more encreaſed by a border of feathers like an hood round the root of the beak. The dodo is furniſhed with wings, covered with ſoft aſh coloured feathers, but they are too ſhort to aſſiſt it in flying. Its tail conſiſts of a few ſmall curled feathers, but it is diſproportioned and diſplaced. Its legs are too ſhort for running, and its body too fat to be ſtrong.

This bird is a native of the Iſle of France; and the Dutch, who firſt diſcovered it there, called it in their language the *nauſeous bird*, as well from its diſguſting figure, as from the bad taſte of its fleſh. However, ſucceeding obſervers contradict this firſt report, and aſſert that its fleſh is good and wholeſome. It is a ſimple bird, and is very eaſily taken. Three or four dodos are enough to dine an hundred men.

The Golden Eagle.

The golden eagle is the largeſt and the nobleſt of all thoſe birds that have received the name of eagle. It weighs about twelve pounds. It is three feet long; the extent of its wings are ſeven feet four inches; the bill is three inches long, and of a deep blue; and the eye is of an hazel colour. The ſight and ſenſe of ſmelling are very acute. The head and neck are clothed with narrow, ſharp pointed feathers, of a deep brown colour, bordered with tawny; but thoſe on the crown of the head, in very old birds, turn grey. The whole body, above as well as below, is of a dark brown; and the feathers of the back are finely clouded with a deeper ſhade of the ſame. The wings when clothed reach to the end of the tail. The quill feathers are of a chocolate colour, and the ſhafts are white. The tail is of a deep brown, irregularly barred and blotched with an obſcure aſh-colour, generally white at the roots of the feathers. The legs are yellow, ſhort, and very ſtrong, being three inches in circumference, and feathered to the very feet. The toes are covered with large ſcales, and armed with the moſt formidable claws, the middle of which are two inches long.

In the rear of this terrible bird follow the *ring-tailed eagle*, the *common eagle*, the *bald eagle*, the *white eagle*, the *kough-footed eagle*, the *erne*, the *black eagle*, the *oſprey*, the *ſea-eagle*, and the *crowned eagle*. Theſe, and others that might be added, form different ſhades in this fierce family; but have all the ſame rapacity, the ſame general form, the ſame habits, and the ſame manner of rearing their young.

In general, theſe birds are found in mountainous countries, and breed among the loftieſt cliffs. They chuſe thoſe places which are remoteſt from man, upon whoſe poſſeſſions they but ſeldom make their depredations, being contented rather to purſue the wild game in the foreſt, than to riſque their ſafety to ſatisfy their hunger.

It requires great patience and much art to tame an eagle; and even though taken young, and rendered ſubmiſſive by long aſſiduity, yet ſtill it is a dangerous domeſtic, and often directs its violence againſt its maſter. When brought into the field for the purpoſes of fowling, the falconer is never ſure of its attachment. That innate pride, and love of liberty, ſtill prompt it to regain its native ſolitudes; and the moment

the falconer ſees it, when let looſe, firſt ſtoop towards the ground, and then riſe perpendicularly into the clouds, he gives up all his former labour for loſt. Sometimes, however, they are brought to have an attachment for their feeder: they are then highly ſerviceable, and liberally provide for his pleaſures and ſupport. When the falconer lets them go from his hand, they play about and hover round him till their game preſent itſelf, which they diſcover at an immenſe diſtance, and always purſue with ſucceſs.

Of all animals the eagle flies higheſt. Of all birds alſo, he has the quickeſt eye; but his ſenſe of ſmelling is far inferior to that of the vulture. He never purſues, therefore, but in ſight; and when he has ſeized his prey, he ſtoops from his height, as if to examine its weight, always laying it on the ground before he carries it off. Although his wing is very powerful, yet, as he has but little ſuppleneſs in the joints of the leg, he finds it difficult to riſe when down; however, if not inſtantly purſued, he finds no difficulty in carrying off geeſe and cranes. He alſo ſnatches off hares, lambs, and kids; and often deſtroys fawns and calves. Infants themſelves, when left unattended, have been deſtroyed by theſe rapacious creatures; which probably gave riſe to the fable of Ganymede's being ſnatched up by an eagle to heaven.

An inſtance is recorded of two children being carried off by eagles in Scotland; but fortunately they ſuffered no hurt by the way. The eagles too being purſued, the children were reſtored ſafe out of the neſts to the affrighted parents.

The eagle is always a formidable neighbour; but particularly when rearing its young. It is then that the female, as well as the male, exert all their force and induſtry in behalf of their young. Smith, in his Hiſtory of Kerry, relates, that a poor man in that country got a comfortable ſubſiſtence for his family, during a ſummer of famine, out of an eagle's neſt, by robbing the eaglets of food, which was plentifully ſupplied by the old ones. He protracted their aſſiduity beyond the uſual time, by clipping the wings, and retarding the flight of the young.

It happened ſome time ago, in the ſame country, that a peaſant reſolved to rob the neſt of an eagle, that had built in a ſmall iſland, in the beautiful lake of Killarney. He accordingly ſtripped, and ſwam in to the iſland, while the old ones were abſent; and, having robbed the neſt of its young, he was preparing to ſwim back, with the eaglets tied in a ſtring. Whilſt, however, he was up to the chin in the water, the old eagles returned, and, miſſing their young, quickly fell upon the plunderer, and, in ſpite of all his reſiſtance, diſpatched him with their beaks and talons.

In order to extirpate theſe pernicious birds, there is a law in the Orkney Iſlands, which entitles any perſon that kills an eagle to a hen out of every houſe in the pariſh in which the plunderer is killed.

The neſt of the eagle is uſually built in the moſt inacceſſible cliff of the rock, and often ſhielded from the weather by ſome jutting crag that hangs over it. Sometimes, however, it is wholly expoſed to the winds; for the neſt is flat, though built with great labour. It is ſaid that the ſame neſt ſerves the eagle during life; and indeed the pains beſtowed in forming it ſeems to argue as much. It is aſſerted, that as ſoon as the young ones are ſomewhat grown, the dam kills the moſt feeble or the moſt voracious. If this happen, it muſt proceed only from

from the neceſſities of the parent, who is incapable of providing for their ſupport; and is content to ſacrifice a part to the welfare of the majority.

The plumage of the eaglets is not ſo ſtrongly marked as when they come to be adult. They are at firſt white; then inclining to yellow; and at laſt of light brown. Age, hunger, long captivity, and diſeaſes, make them whiter. They are ſaid to live above an hundred years: and they at laſt die, not of old age, but from the beak turning inward upon the under mandible, and thus preventing their taking any food. They are indeed equally remarkable, for their longevity, and for their power of continuing a long time from food. One of this ſpecies, which has now been nine years in the poſſeſſion of Mr Owen Holland, of Conway, lived thirty-two years with the gentleman who made him a preſent of it; but what its age was when the latter received it from Ireland, is unknown. The ſame bird alſo affords a proof of the truth of the other remark; having once, through the neglect of ſervants, endured hunger for twenty-one days.

Such are the general characteriſtics and habitudes of the eagle; however, in ſome theſe habitudes differ, as the ſea eagle and the oſprey live chiefly upon fiſh, and conſequently build their neſts on the ſea-ſhore. They alſo build by the ſides of rivers, on the ground among reeds; and often lay three or four eggs, rather leſs than thoſe of a hen, of a white elliptical form. They catch their prey, which is chiefly fiſh, by darting down upon them. The Italians compare the violent deſcent of theſe birds on their prey, to the fall of lead into the water; and call them aquila plumbina, or the leaden eagle.

Nor is the bald eagle, which is an inhabitant of North Carolina, leſs remarkable for habits peculiar to itſelf. It flies very heavily; and cannot overtake its prey, like others of the ſame denomination. To remedy this, it often attends a ſort of fiſhing hawk, which it purſues, and ſtrips the plunderer of its prey. This is the more remarkable, as this hawk flies ſwifter than it. It alſo generally attends upon fowlers in the winter; and when any birds are wounded, they are certain of being ſeized by the eagle, though they may fly from the fowler. This bird will often alſo ſteal young pigs, and carry them alive to the neſt, which is compoſed of twigs, ſticks, and rubbiſh. This neſt is large enough to fill the body of a cart; and is commonly full of bones, and putrid fleſh, the ſtench of which is intolerable.

The diſtinctive marks of each ſpecies are as follow.

The *golden eagle*, is of a tawny, iron colour: its head and neck are of a reddiſh iron: the tail feathers are of a dirty white, marked with croſs bands of tawny iron: the legs are covered with tawny iron feathers.

The *common eagle*, is of a brown colour: the head and upper part of the neck inclines to red; the tail feathers are white, blackening at the ends: the outer ones, on each ſide, are of an aſh colour, the legs are covered with feathers of a reddiſh brown.

The *bald eagle*, is brown: the head, neck and tail feathers are white; the feathers of the upper part of the leg are brown.

The *white eagle*, is perfectly white.

The *rough-footed eagle*, is of a dirty brown colour: ſpotted under the wings, and on the legs, with white: the feathers of the tail are white

at the beginning and the point; the leg feathers are dirty brown, ſpotted with white.

The *white tailed eagle*, is a dirty brown: its head is white; the ſtems of the feathers are black; the rump inclines to black; the tail-feathers, the firſt half black, the end half white: its legs are naked.

The *erne*, is of a dirty iron colour above, of an iron mixed with black below: the head and neck are aſh, mixed with cheſnut: the points of the wings are blackiſh, the tail feathers are white; the legs are naked.

The *black eagle*, is blackiſh: the head and upper part of the neck mixed with red; the tail-feathers, are the firſt half white, ſpeckled with black; the other half, blackiſh; the leg-feathers are of a dirty white.

The *ſea eagle*, inclines to white, mixed with iron brown; its belly is white, with iron-coloured ſpots; the covert feathers of the tail are whitiſh; the tail-feathers are black at the extremity: the upper part of the leg-feathers are of an iron brown.

The *oſprey*, is brown above; and white below; the back of the head is white; the outward tail-feathers, on the inner ſide, are ſtreaked with white; and its legs are naked.

The *jean le blanc*, is browniſh grey above; but white ſpotted with tawny brown, below; the tail feathers on the outſide, and at the extremity, are brown: on the inſide, they are white, ſtreaked with brown: the legs are naked.

The *eagle of Braſil*, is a blackiſh brown; its wings are mixed with aſh colour: its tail feathers are white, and its legs are naked.

The *Oroonoko eagle*, with a topping, above, is blackiſh brown: below, it is white, ſpotted with black: the upper part of the neck is yellow: the tail-feathers are brown, with white circles; its leg-feathers are white, ſpotted with black.

The *crowned African eagle*, with a topping: its tail is of an aſh-colour, ſtreaked on the upper ſide with black.

The *eagle of Pondicherry*, is of a cheſnut colour, the half of the ſix outward tail feathers are black.

The Condor.

The Condor poſſeſſes, in an higher degree than the eagle, all the qualities that render it formidable, not only to the feathered kind, but to beaſts, and even to man himſelf. It is eighteen feet acroſs, when its wings are extended. The beak is ſo ſtrong as to pierce the body of a cow; and two of them are able to devour it. They do not even abſtain from man himſelf: but fortunately there are but few of the ſpecies. The Indians aſſert, that they will carry off a deer, or a young calf, in their talons, as eagles would an hare or a rabbit. They ſeldom frequent the foreſts, as they require a large ſpace for the diſplay of their wings; but they are found on the ſea-ſhore, and the banks of rivers, whither they deſcend, at certain ſeaſons, from their heights of the mountains. Condamine has frequently ſeen them in ſeveral parts of the mountains of Quito, and obſerved them hovering over a flock of ſheep; and he thinks they would, once, have attempted to carry one off, had they not been ſcared away by the ſhepherds. The condor is of a brown colour.

It is doubted whether this animal be peculiar to America only, or whether it may not have been deſcribed by the naturaliſts of other countries.

tries. It is ſuppoſed, that the great bird, called the Rock, deſcribed by Arabian writers, and ſo much exaggerated by fable, is but a ſpecies of the condor. The great bird of Tarnaſſar, in the Eaſt Indies, which is larger than the eagle, as well as the vulture of Senegal, which carries of children, are nothing elſe but the condor. Ruſſia, Lapland, and even Switzerland and Germany, are ſaid to have been acquainted with this animal. In the deſarts of Pachomac, where it is chiefly ſeen, men ſeldom venture to travel. Thoſe wild regions are ſufficient of themſelves to inſpire a ſecret horror: broken precipices—prowling panthers—foreſts only vocal with the hiſſing of ſerpents—and mountains rendered ſtill more terrible by the condor, the only bird that ventures to make its reſidence in thoſe dreary ſituations.

The Vulture.

Vultures may be eaſily diſtinguiſhed from all thoſe of the eagle kind, by the nakedneſs of their heads and necks, which are without feathers, and only covered with a very ſlight down, or a few ſcattered hairs. Their eyes are more prominent; thoſe of the eagle being buried more in the ſocket. The claws are ſhorter, and leſs hooked. The inſide of the wing is covered with a thick down, which is different in them from all other birds of prey. Their attitude is not ſo erect as that of the eagle; and their flight more difficult and heavy.

In this tribe we may claſs the golden, the aſh-coloured, and the brown vulture, which are inhabitants of Europe; the ſpotted, and the black vulture of Egypt; the bearded vulture, the Braſilian vulture, and the king of the vultures of South America.

The *Golden Vulture* ſeems to be the firſt of the kind; and is in many reſpects like the golden eagle, but larger in every proportion. From the end of the beak to that of the tail, it is four feet and an half, and to the end, of the claws forty five inches. The lower part of the neck, breaſt, and belly, are of a red colour; but on the tail it is more faint, and deeper near the head. The feathers are black on the back; but of a yelloviſh colour on the wings and tail. Others of the kind differ from this in colour and dimenſions; but they are all ſtrongly marked by their naked heads, and beak ſtraight in the beginning, but hooking at the point.

They are ſtill more ſtrongly marked by their nature, which in all vultures is cruel, filthy, and indolent. Their ſenſe of ſmelling, however, is amazingly acute; and Nature, for this purpoſe, has beſtowed upon them two large apertures or noſtrils without, and an extenſive olfactory membrane within. They ſeem adapted inwardly, not only to be carnivorous, but to eat corn, or whatever elſe of that kind they can fall in with.

This bird, which is common in many parts of Europe, and but too well known on the weſtern continent, is unknown in England. In Egypt, Arabia, and many other kingdoms of Africa and Aſia, vultures are found in prodigious numbers. The inſide down of their wing is converted into a very warm and comfortable kind of fur, and is commonly ſold in the Aſiatic markets.

In Egypt, indeed, this bird ſeems to be of ſingular ſervice. There are great flocks of them in the neighbourhood of Grand Cairo, which no perſon is permitted to deſtroy. The ſervice they render to the inhabitants, is devouring all the carrion and filth of that great city; which might

might otherwiſe tend to corrupt the air. They are for the moſt part ſeen in company with the wild dogs of the country, tearing a carcaſs very deliberately together. This odd aſſociation produces no quarrels. The birds and quadrupeds ſeem to live amicably, and nothing but harmony ſubſiſts between them. The wonder is ſtill the greater, as both are extremely rapacious, and both very lean; probably having but little even of the wretched food on which they ſubſiſt.

In America, they lead a life ſomewhat ſimilar. Wherever the huntſmen, who there only purſue birds for the ſkins, are found to go, theſe birds are ſeen to purſue them. They ſtill hover at a little diſtance; and the moment they ſee the beaſt flayed and left by the huntſmen, they call out to each other, pour down upon the carcaſs, and, pick its bones bare in an inſtant.

The ſloth, the filth, and the voraciouſneſs of theſe birds, are almoſt incredible. In the Braſils, where they are found in great abundance, when they light upon a carcaſs, which they have liberty to tear at their eaſe, they gorge themſelves, till they are unable to fly; and muſt hop along when they are purſued. They are always ſlow and unable to mount eaſily from the ground, but when ſatiated they can hardly move. They do not however continue long in this awkward poſture; for they ſoon diſcharge the contents of their ſtomach by vomit.

It is pleaſant to be a ſpectator of the hoſtilities between animals that are thus hateful or noxious. Of all creatures, the two moſt at enmity, is the vulture of Braſil and the crocodile. The female of this terrible amphibious creature, which in the rivers of that part of the world grows to the ſize of twenty-ſeven feet, lays between one and two hundred eggs, in the ſands, on the ſide of the river, and leaves them to be hatched by the heat of the climate. For this purpoſe, ſhe takes every precaution that the place where ſhe depoſits them may not be diſcovered by any other animal. In the mean time, however a number of vultures, ſit, ſilent and unſeen, in the branches of ſome neighbouring foreſt, and view the crocodile's operations, with the pleaſing expectation of plunder. They patiently wait till the crocodile has laid the whole number of her eggs, till ſhe has covered them carefully under the ſand, and until ſhe is retired from them to a convenient diſtance. Then, encouraging each other with cries, they pour in a body down upon the neſt, hook up the ſand in a moment, and devour the whole brood. Nothing can be more lean, ſtringy, nauſeous, and unſavory than the fleſh of theſe vultures. It is in vain that, when killed, the rump has been cut off; in vain the body has been waſhed, and ſpices uſed to overpower its prevailing odour: it ſtill ſmells and taſtes of the carrion by which it was nouriſhed, and ſends forth a ſtench that is inſupportable. Theſe birds, at leaſt thoſe of Europe, uſually lay two eggs at a time, and produce but once a year. They make their neſts in inacceſſible cliffs, and in places ſo remote that it is almoſt impoſſible to find them.

Of the Falcon kind.

Falconry, which is now ſo much diffuſed among us, was the principal amuſement of our anceſtors. A perſon of rank ſcarce ſtirred out without his hawk on his hand, which in old paintings is the criterion of nobility. The expence which attended this ſport was very great. Among the old Welch princes, the king's falconer was the fourth officer

ficer in the ſtate; but, notwithſtanding all his honours, he was forbid to take more than three draughts of beer from his horn, leſt he ſhould get drunk and neglect his duty. In the reign of James the Firſt, Sir Thomas Monſon is ſaid to have given a thouſand pounds for a caſt of hawks; and ſuch was their value in general, that it was made felony in the reign of Edward the Third to ſteal a hawk. To take its eggs, even in a perſon's own ground, was puniſhable with impriſonment for a year and a day, together with a fine at the king's pleaſure.

Of many of the ancient falcons uſed for this purpoſe, we at this time know only the names. Of thoſe in uſe at preſent, both here and in other countries, are the gyr-falcon, the falcon, the lanner, the ſacre, the hobby, the keſtril, and the merlin. Theſe are called the long-winged hawks, to diſtinguiſh them from the goſs-hawk, the ſparrow-hawk, the kite, and the buzzard, which have ſhorter wings and which are either too ſlow, too cowardly, too indolent, or too obſtinate, to contribute to the pleaſures of the field.

The *gyr-falcon* leads in this bold train. He exceeds all other falcons in the largeneſs of his ſize, for he approaches nearly to the magnitude of the eagle. The top of the head is flat, and of an aſh colour, with a ſtrong, thick, ſhort, and blue beak. The feathers of the back and wings are marked with black ſpots, in the ſhape of an heart. He is a courageous and fierce bird, nor is he afraid even of the eagle himſelf; but he chiefly flies from the ſtork, the heron, and the crane. He is moſtly found in the colder regions of the north, but loſes neither his ſtrength nor his courage when introduced into the milder climates.

The *falcon*, properly ſo called, is the ſecond both in ſize and value. There are ſome varieties in this bird; but there ſeem to be only two that claim diſtinction. Theſe are the falcon-gentil and the peregrine-falcon; both of which are far leſs than the gyr, and are about the ſize of a raven. Next in ſize to theſe is the *lanner*, a bird now very little known in Europe. The ſacre follows whoſe legs are of a bluiſh colour and ſerve to diſtinguiſh it. To theſe ſucceeds the hobby, uſed for ſmaller game, for daring larks, and ſtooping at quails. The keſtril was trained for the ſame purpoſes; and laſtly the merlin; which though the ſmalleſt of all the hawk or falcon kind, and not much larger than a thruſh, yet diſplays a degree of courage that renders him formidable even to birds ten times his ſize.

The courage of theſe creatures in general was ſuch, that no bird, which was not very much above their own ſize, could terrify them. Their ſwiftneſs was ſo great, that ſcarce any bird could eſcape them; and their docility ſo remarkable, that they obeyed not only the commands, but the ſigns of their maſter. They remained quietly perched upon his hand till their game was fluſhed, or elſe kept hovering round his head, till he gave them leave to ſeize upon their prey. The common falcon is a bird of ſuch ſpirit, that like a conqueror in a country, he keeps all birds in ſubjection to his proweſs. Where he is ſeen flying wild, as I often had an opportunity of ſeeing him, the birds of every kind, that ſeemed entirely to diſregard the kite or the ſparrow-hawk, fly with ſcreams at his moſt diſtant appearance.

In order to train up a falcon, the maſter begins by putting ſtraps upon his legs, which are called jeſſes, and to which a ring with the owner's name is faſtened. To theſe alſo are added little bells, which often

direct

direct the place where he is, if loſt in the chace. He is always carried on the hand, and is obliged to be kept without ſleeping. If he be ſtubborn, and attempt to bite, his head is plunged into water. Thus, by hunger, watching, and fatigue, he is conſtrained to ſubmit to having his head covered by a hood or cowl, which covers his eyes. This troubleſome employment continues often for three days and nights together. It rarely happens but at the end of this, his neceſſities, and the privation of light make him give up every idea of liberty, and overcome his natural wildneſs. His maſter judges of his being tamed when he permits his head to be covered without reſiſtance, and when uncovered he ſeizes the meat before him contentedly. The repetition of theſe leſſons by degrees enſures ſucceſs. His wants being the chief principle of his dependance, it is endeavoured to encreaſe his appetite by giving him little balls of flannel, which he greedily ſwallows. Having thus excited the appetite, care is taken to ſatisfy it; and thus gratitude attaches the bird to the man who but juſt before had been his tormentor.

When the firſt leſſons have ſucceeded, and the bird ſhews ſigns of docility, he is carried out upon ſome green, the head is uncovered, and, by flattering him with food at different times, he is taught to jump to the hand, and to continue on it. When confirmed in this habit, it is then thought time to make him acquainted with the lure. This lure is only a thing ſtuffed like the bird the falcon is deſigned to purſue, ſuch as an heron, a pigeon, or a quail, and on this lure they always take care to give him his food. It is quite neceſſary that the bird ſhould not only be acquainted with this but fond of it. The uſe of this lure is to flatter him back when he has flown in the air, which it ſometimes fails to do; and it is always requiſite to aſſiſt it by the voice and the ſigns of the maſter. When the familiarity and the docility of the bird are ſufficiently confirmed on the green, he is then uncovered as before; and the falconer, calling him at ſome diſtance, ſhews him the lure. When he flies upon it he is permitted to take a large morſel of the food which is tied to it. The next day the lure is ſhewn him at a greater diſtance, till he comes at laſt to fly to it at the utmoſt length of his ſtring. Then the game itſelf which he is to purſue is preſented to him alive, but diſabled or tame. After having ſeized this ſeveral times with his ſtring, he is then left entirely at liberty, and carried into the field for the purpoſes of purſuing that which is wild. At this he flies with avidity; and when he has ſeized it, or killed it, he is brought back by the voice and the lure.

By this method of inſtruction, an hawk may be taught to fly at any game whatſoever; but falconers have chiefly confined their purſuit only to ſuch animals as yield them profit by the capture, or pleaſure in the purſuit. The hare, the partridge, and the quail, repay the trouble of taking them; but the moſt delightful ſport is the falcon's purſuit of the heron, the kite, or the wood lark. Inſtead of flying directly forward, as ſome other birds do, theſe, when they ſee themſelves threatened by the approach of the hawk, immediately take to the ſkies. They fly almoſt perpendicularly upward, while their ardent purſuer keep pace with their flight, and tries to riſe above them. Thus both diminiſh by degrees from the gazing ſpectator below, till they are quite loſt in the clouds; but they are ſoon ſeen deſcending, ſtruggling together,

gether, and uſing every effort on both ſides; the one of rapacious inſult, the other of deſperate defence. The unequal combat is ſoon at an end: the falcon comes off victorious, and the other, killed or diſabled, falls a prey either to the bird or to the ſportſman.

Reſpecting other birds, they are not ſo much purſued, as they generally fly ſtraight forward, by which the ſportſman loſes ſight of the chace and what is ſtill worſe, runs a chance of loſing his falcon too. The purſuit of the lark by a couple of merlins is conſidered, by him only who regards the ſagacity of the chace, as one of the moſt delightful ſpectacles this exerciſe can afford. The amuſement is, to ſee one of the merlins climbing to get the aſcendant of the lark, while the other, lying low for the beſt advantage, waits the ſucceſs of its companion's efforts. Hence whilſt the one ſtoops to ſtrike its prey, the other ſeizes it as it deſcends.

The more ignoble race of birds make up by cunning and aſſiduity what theſe claim by force and celerity. The kite, which may be diſtinguiſhed from all the reſt of this tribe by his forky tail, and his ſlow floating motion, ſeems almoſt continually upon the wing. He lives only upon accidental carnage, as almoſt every bird in the air is able to make good his retreat againſt him. He may be therefore conſidered as an inſidious thief who only prowls about, and, when he finds a ſmall bird wounded, or a young chicken ſtrayed too far from its dam, inſtantly avails itſelf of the opportunity, and, like a famiſhed glutton, is ſure to ſhew no mercy. His hunger, indeed, often urges him to acts of ſeeming deſperation. I have ſeen one of them fly round and round for a while to mark a clutch of chickens, and then on a ſudden dart like lightning upon the innocent little animal, and carry it off; the hen venting her indignation in vain, and the boys hooting and caſting ſtones to ſcare it from its plunder. Of all birds therefore the kite is the good houſewife's greateſt enemy.

Of all obſcene birds, the Kite is the beſt known; but the buzzard among us is the moſt common. He is a ſluggiſh, inactive bird, and often continues perched whole days together upon the ſame bough. He is rather an aſſaſſin than a purſuer; and lives more upon frogs, mice, and inſects, which he can eaſily ſeize, than upon birds which he is obliged to follow. He lives in ſummer by robbing the neſts of other birds, and ſucking their eggs, and more reſembles the owl kind in his countenance than any other rapacious bird of day. The goſs-hawk and ſparrow-hawk are what Mr Willoughby calls ſhort-winged birds, and conſequently unfit for training, however injurious they may be to the pigeon-houſe or the ſportſman. They have been indeed taught to fly at game; but little is to be obtained from their efforts, as they are averſe to inſtruction.

The Butcher Bird.

Before I conclude this ſhort hiſtory of rapacious birds that prey by day, I muſt beg leave to deſcribe a tribe of ſmaller birds, which ſeem from their ſize rather to be claſſed with the harmleſs order of the ſparrow-kind; but which from their crooked beak, courage and appetites for ſlaughter, certainly deſerve a place here. The leſſer butcher-bird is not much above the ſize of a lark; and that of the ſmalleſt ſpecies is not ſo big as a ſparrow; yet, diminutive as theſe little animals are, they make themſelves formidable to birds of four times their ſize.

The greater butcher bird is about as large as a thruſh: its bill is black, an inch long, and hooked at the end. At the ſame time its legs and feet are ſlender, and its toes are formed rather like thoſe of ſuch as live chiefly upon inſects and grain. Its habits, indeed, ſeem to correſpond with its conformation, and it lives as well upon fleſh as upon inſects. Its appetite for fleſh, however, is the moſt prevalent; and it never takes up with the former when it can obtain the latter. This bird, therefore, leads a life of continual combat and oppoſition. As from its ſize it does not much terrify the ſmaller birds of the foreſt, ſo it very frequently meets birds willing to try its ſtrength, and it never declines the engagement.

It is wonderful to ſee with what intrepidity this little creature goes to war with the pie, the crow, and the keſtril, all above four times larger than itſelf. It not only fights upon the defenſive, but often gives the attack, and always with advantage, particularly when the male and female unite to protect their young, and to expel the more powerful birds. At that ſeaſon, they do not wait the approach of their invader; it is ſufficient that they ſee him preparing for the aſſault at a diſtance. It is then that they ſally forth with loud cries, wound him on every ſide, and drive him off with ſuch fury, that he ſeldom ventures to return to the charge. In theſe diſputes, they generally obtain the victory; though it ſometimes happens that they fall to the ground with the bird they have ſo fiercely fixed upon, and the combat ends with the deſtruction of the aſſailant as well as of the defender.

For this reaſon, the chief birds of prey reſpect them; while the kite, the buzzard, and the crow, ſeem rather to fear than to deſire the engagement. Nothing in nature better diſplays the reſpect paid to the claims of courage, than to ſee this little bird, apparently ſo contemptible, fly in company with the lanner, the falcon, and all the tyrants of the air, without dreading their ſtrength, or avoiding their reſentment.

Small birds are its uſual food. It ſeizes them by the throat, and ſtrangles them in an inſtant. When it has thus killed the bird or inſect, it is aſſerted by the beſt authority, that it fixes them upon ſome neighbouring thorn, and, when thus ſpitted, pulls them to pieces with its bill. It is ſuppoſed that as Nature has not given this bird ſtrength ſufficient to tear its prey to pieces with its feet, as the hawks do, it is obliged to have recourſe to this expedient.

During ſummer, ſuch of them as conſtantly reſide here, for the ſmaller red butcher-bird migrates, remain among the mountainous parts of the country; but in winter they deſcend into the plains and approach nearer the habitations of men. The larger kinds make their neſts on the higheſt trees, while the leſſer build in buſhes in the fields and hedge-rows. They both lay about ſix eggs, of a white colour, but encircled at the larger end with a ring of browniſh red. The neſt on the outſide is compoſed of white moſs, interwoven with long graſs; within, it is well lined with wool, and it is uſually fixed among the forking branches of a tree. The female feeds her young at the firſt with catterpillers and other inſects; but ſoon after accuſtoms them to fleſh, which the male procures with ſurpriſing induſtry. Their nature alſo is very different from that of other birds of prey in their paternal care; for, ſo far from driving out their young from the neſt to ſhift

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for themſelves, they keep them with care; and even when adult they do not forſake them, but the whole brood live in one family together. Each family lives apart, and is generally compoſed of the male, female, and five or ſix young ones. Theſe all maintain peace and ſubordination among each other, and hunt in concert. It is eaſy to diſtinguiſh theſe birds at a diſtance, not only from their being in flocks, but alſo from their manner of flying, which is for the moſt part up and down, ſeldom direct or ſide-ways.

Of theſe birds there are three or four different kinds; but the greater aſh-coloured butcher-bird is the leaſt known among us. The red backed butcher-bird migrates in autumn, and does not return till ſpring. The woodchat reſembles the former, except in the colour of the back, which is brown, and not red as in the other. There is ſtill another, leſs than either of the former, found in the marſhes near London. This too is a bird of prey, although not much bigger than a tit-mouſe; an evident proof that an animal's courage or rapacity does not depend upon its ſize.

The Owl Kind.

All birds of this kind have one common mark, by which they are diſtinguiſhed from other birds; for their eyes, like thoſe of tigers and cats, are formed for ſeeing better in the duſk, than in the broad glare of ſun-ſhine. The pupil in fact is capable of great dilatation or contraction. By contracting it, the brighter light of the day, which would act too powerfully upon the ſenſibility of the eye, is excluded; while by dilating the pupil, the animal takes in the more faint rays of the night, by which it is enabled to ſpy its prey, and catch it with greater eaſe in the dark.

But though owls are dazzled by too bright a day-light, yet they do not ſee beſt in the darkeſt nights, as ſome have been inclined to imagine.

The nights when the moon ſhines are the times of their moſt ſucceſsful plunder; for when it is wholly dark, they are leſs qualified for ſeeing and purſuing their prey. Except, therefore by moonlight, they abridge the hours of their chace. If, however, they come out at the approach of duſk in the evening, they return before it is totally dark, and then riſe by twilight next morning, to purſue their game, and to return, in like manner, before the broad day-light begins to dazzle them with its ſplendor.

Yet the faculty of ſeeing in the night, or of being entirely dazzled by day, is not alike in every ſpecies of theſe nocturnal birds. The common White or Barn Owl, for inſtance, ſees with ſuch exquiſite acuteneſs in the dark, that though the barn has been ſhut at night, and the light thus totally excluded, yet it perceives the ſmalleſt mouſe that peeps from its hole. The brown horned owl on the other hand, is often ſeen to prowl along the hedges by day, like the ſparrow-hawk; and ſometimes with good ſucceſs.

All birds of the owl kind may be divided into two ſorts; thoſe which have horns, and thoſe which want them. Theſe horns are nothing more than two or three feathers that ſtand up on each ſide of the head over the ear, and give this animal a kind of horned appearance. Of the horned kind, is the *great horned owl*, which at firſt view appears

as large as an eagle, though when more narrowly inſpected he will be found much leſs. His eyes are large and tranſparent, encircled with an orange-coloured iris. His ears are large and deep: his plumage is of a reddiſh brown, marked on the back with black and yellow ſpots, and is yellow only upon the belly.

Next to this is the *common horned owl*, of a much ſmaller ſize than the former, and with horns much ſhorter. As the great owl was five feet from the tip of one wing to the other, this is but three. The horns are but about an inch long, and conſiſt of ſix feathers, variegated with black and yellow.

There is ſtill a ſmaller kind of the horned owl, which is not much larger than a black-bird; and whoſe horns are remarkably ſhort, being compoſed but of one feather, and that not above half an inch high.

To theſe ſucceeds the tribe without horns. 1. The *howlet*, which is the largeſt of this kind, with duſky plumes, and black eyes. 2. The *ſcreech owl*, which is of a ſmaller ſize, with blue eyes, and plumage of an iron grey. 3. The *white owl*, which is about as large as the former, with yellow eyes and whitiſh plumage. 4. The *great brown owl* which is leſs than the former, with brown plumage and a brown beak; and laſtly, the *little brown owl*, which has yellowiſh-coloured eyes, and an orange-coloured bill.

All this tribe of animals, however they may differ in their ſize and plumage, agree in their general characteriſtics of preying by night. Their bodies are ſtrong and muſcular: their feet and claws are made for tearing their prey; and their ſtomachs for digeſting it. It muſt be remarked, however, that the digeſtion of all birds that live upon mice, lizards, or ſuch like food, is not very perfect; for though they ſwallow them whole, yet they are always ſeen ſome time after to diſgorge the ſkin and bones, rolled up in a pellet, as being indigeſtible.

As they are incapable of ſupporting the light of the day, or at leaſt of then ſeeing and readily avoiding their danger, they ſhut themſelves up during the day, in ſome obſcure retreat, ſuited to their gloomy appetites, where they continue in ſolitude and ſilence. The cavern of a rock, the darkeſt part of an hollow tree, the battlements of a ruined caſtle, ſome obſcure hole in a farmer's out-houſe, are their uſual abodes. If they be ſeen out of theſe retreats in the day time, they may be conſidered as having loſt their way; as having by ſome accident been thrown into the midſt of their enemies, and ſurrounded with danger.

In this diſtreſs they are obliged to take ſhelter in the firſt tree or hedge that offers, till the returning darkneſs once more ſupplies them with a better plan of the country. But it too often happens that, with all their precaution to conceal themſelves, they are ſpied out by other birds, and are ſure to receive no mercy. The black-bird, the thruſh, the jay, the bunting, and the red-breaſt, all come in file, and employ their little arts of inſult and abuſe. The ſmalleſt, the feebleſt, and the moſt contemptible of this unfortunate bird's enemies, are then the firſt to injure and torment him. They encreaſe their cries and turbulence round him, flap him with their wings, and are ready to ſhew their courage to be great, as they are ſenſible that their danger is but ſmall. The unfortunate owl, not knowing where to attack or where to fly, patiently ſits and ſuffers all their inſults. Aſtoniſhed and dizzy, he only replies to their mockeries by awkward and ridiculous geſtures, by

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turning his head, and rolling his eyes with an air of ſtupidity. It is enough that an owl appears by day to ſet the whole grove into a kind of uproar. Either the averſion all the ſmall birds entertain againſt this animal, or the conſciouſneſs of their own ſecurity, makes them purſue him without ceaſing, whilſt they encourage each other by their mutual cries to lend aſſiſtance in this laudable undertaking.

It ſometimes happens, however, that the little birds purſue their inſults with the ſame imprudent zeal which the owl himſelf had purſued his depredations. They hunt him the whole day; but when night returns, he makes his purſuers pay dear for their former ſport: nor is man always an unconcerned ſpectator. The bird catchers have got an art of counterfeiting the cry of the owl exactly; and, having before limed the branches of an hedge, they ſit unſeen and give the call. At this, all the little birds flock to the place where they expect to find their well-known enemy; but inſtead of finding their ſtupid antagoniſt, they are ſtuck faſt to the hedge themſelves. This ſport muſt be put in practice an hour before night-fall, and in order to ſucceed; for if it is put off till later, thoſe birds which but a few minutes ſooner came to provoke their enemy, will then fly from him with as much terror as they juſt before ſhewed inſolence.

It is not unpleaſant to ſee one ſtupid bird made in ſome ſort a decoy to deceive another. The great horned owl is ſometimes made uſe of for this purpoſe, to lure the kite, when falconers deſire to catch him for the purpoſes of training the falcon. Upon this occaſion they clap the tail of a fox to the great owl, to render his figure extraordinary; in which trim he ſails ſlowly along, flying low, which is his uſual manner. The kite, either curious to obſerve this odd kind of animal, or perhaps inquiſitive to ſee whither it may not be proper for food, flies after, and approaches nearer and nearer. In this manner he continues to hover, and ſometimes to deſcend, till the falconer ſetting a ſtrong-winged hawk againſt him, ſeizes him for the purpoſe of training his young at home.

The uſual place where the great horned owl breeds is in the cavern of a rock, the hollow of a tree, or the turret of ſome ruined caſtle. Its neſt is near three feet in diameter, and compoſed of ſticks, bound together by the fibrous roots of trees, and lined with leaves on the inſide. It lays about three eggs, which are larger than thoſe of an hen, and of a colour ſomewhat reſembling the bird itſelf. The leſſer owl of this kind never makes a neſt for itſelf, but always contents itſelf with the old neſt of ſome other bird, which it has often been forced to abandon. It lays four or five eggs; and the young are all white at firſt, but change their colour in about a fortnight. The other owls in general build near the place where they chiefly prey; that which feeds upon birds in ſome neighbouring grove, that which preys chiefly upon mice near ſome farmer's yard, where the proprietor of the place takes care to afford it perfect ſecurity. In fact, whatever miſchief one ſpecies of owl may do in the woods, the barn-owl compenſates recompenſe for it, by being equally active in deſtroying mice nearer home. A ſingle owl is therefore ſaid to be more ſerviceable than half a dozen cats in ridding the barn of its domeſtic vermin. "In the year 1580," ſays an old writer, "at Hallontide, an army of mice ſo over-run the marſhes near Southminſter,

minſter, that they ate up the graſs to the very roots. But at length a great number of ſtrange painted owls came and devoured all the mice. The like happened again in Eſſex about ſixty years after."

CHAP. XXIV.

OF BIRDS OF THE POULTRY KIND—THE COCK—THE PEACOCK—THE TURKEY—THE PHEASANT—THE GUINEA FOWL—THE BUSTARD—THD GROUS, BLACK GAME, &c.—THE PARTRIDGE—THE QUAIL.

The Cock.

OF all birds the cock ſeems to be the oldeſt companion of mankind, to have been firſt reclaimed from the foreſt, and taken to ſupply the accidental failure of the luxuries or neceſſities of life. As he has been longeſt under the care of man, ſo perhaps he exhibits the greateſt number of varieties, there being ſcarcely two birds of this ſpecies that exactly reſemble each other in plumage and form.

It is not well aſcertained when the cock firſt became a domeſtic in Europe; but it is generally agreed that we firſt had him in our weſtern world from the kingdom of Perſia. The cock is found wild in the iſland of Tinian and in many others of the Indian ocean, and in the woods on the coaſts of Malabar. His plumage is black and yellow, and his comb and wattles are yellow and purple. There is another peculiarity alſo in thoſe of the Indian woods. Their bones which when boiled with us are white, as every body knows, in thoſe are as black as ebony. Whether this tincture proceeds from their food, as the bones are tinctured red by feeding upon madder, I leave to the diſcuſſion of others.

At their firſt propagation in Europe, there were diſtinctions which are not now. The ancients eſteemed thoſe fowls whoſe plumage was reddiſh as invaluable. Thoſe on the other hand, whoſe plumage was white, were conſidered as quite unfit for domeſtic purpoſes. No animal in the world has greater courage than the cock when oppoſed to one of his own ſpecies; and in every part of the world where refinement and poliſhed manners have not entirely taken place, cock-fighting is a principal diverſion. In China, India, the Philippine Iſlands, and all over the eaſt, cock-fighting is the ſport and amuſement of kings and princes. With us it is declining every day; and it is to be hoped it will in time become only the paſtime of the loweſt and vulgar. It is the opinion of many that we have a bolder and more valiant breed than is to be found elſewhere. The truth however, is, they have cocks in China as bold, if not bolder, than ours; and, what would be conſidered as valuable among cockers here, they have more ſtrength with leſs weight.

The hen ſeldom clutches a brood of chickens above once a ſeaſon, though inſtances have been known in which they have produced two. The number of eggs a domeſtic hen will lay in the year are above two hundred, provided ſhe be well fed, and have her liberty. It matters not much whether ſhe be trodden by the cock or no; ſhe will continue

to

to lay, although all the eggs of this kind can never by hatching be brought to produce a living animal. Her neſt is made without any care, if left to herſelf; a hole ſcratched into the ground, among a few buſhes, is the only preparation ſhe makes for this ſeaſon of patient expectation. Nature, almoſt exhauſted by its own fecundity, ſeems to inform her of the proper time for hatching, which ſhe herſelf teſtifies by a clucking note, and by diſcontinuing to lay. If left entirely to herſelf, the hen would ſeldom lay above twenty eggs in the ſame neſt, without attempting to hatch them. While ſhe ſits, ſhe carefully turns her eggs, and even removes them to different ſituations; till at length, in about three weeks the young brood begin to give ſigns of a deſire to burſt from their confinement. When by the repeated efforts of their bill, they have forced a paſſage through the ſhell. The ſtrongeſt and beſt chickens generally are the firſt candidates for liberty; the weakeſt come behind, and ſome even die in the ſhell. When all are produced, ſhe then leads them forth to provide for themſelves. Her affection and her pride ſeem then to alter her very nature, and correct her imperfections. No longer voracious or cowardly, ſhe abſtains from all food that her young can ſwallow, and boldly defends them from the attack of every creature that ſhe imagines may injure them.

Ten or twelve chickens are the greateſt number that a good hen can rear and clutch at a time; but as this bears no proportion to the number of her eggs, ſchemes have been imagined to clutch all the eggs of an hen, and thus turn her produce to the greateſt advantage. The contrivance I mean is the artificial method of hatching chickens in ſtoves, as is practiſed at Grand Cairo; or in a chymical elaboratory properly graduated, as has been effected by Mr Reaumur. At Grand Cairo, they in this manner produce ſix or ſeven thouſand chickens at a time; where, as they are brought forth in their ſpring, which is warmer than our ſummer, the young ones thrive without clutching. But it is otherwiſe in our colder and unequal climate; the little animal may, without much difficulty, be hatched from the ſhell; but they almoſt all periſh when excluded. The cock is a ſhort-lived animal; but how long theſe birds live, if left to themſelves, is not yet well aſcertained by any hiſtorian. As they are kept only for profit, and in a few years become unfit for generation, there are few that, from mere motives of curioſity, will make the tedious experiment of maintaining a proper number till they die. Aldrovandus hints that they would live ten years; and it is probable that this may be its extent.

The Peacock.

The Peacock, by the common people of Italy, is ſaid to have the plumage of an angel, the voice of a devil and the guts of a thief. Our firſt peacocks were brought from the Eaſt-Indies; and we are aſſured, that they are ſtill found in vaſt flocks, in a wild ſtate, in the iſlands of Java and Ceylon.

The peacock has in ſome countries been eſteemed as an article of luxury, but whatever there may be of delicacy in the fleſh of a young peacock, it is certain an old one is very unpalatable.

Its fame for delicacy, however, did not continue very long; for we find, in the time of Francis the Firſt, that it was a cuſtom to ſerve up peacocks to the tables of the great, merely to be ſeen. Their manner was to ſtrip off the ſkin; and then preparing the body with the warmeſt

ſpices,

ſpices, they covered it up again in its former ſkin, with all its plumage in full diſplay, and no way injured by the preparation. The bird thus prepared, was often preſerved for many years without corrupting; and it is aſſerted that the peacock's fleſh keeps longer unputrified than that of any other animal. At ſplendid entertainments, particularly at weddings, they filled the bird's beak and throat with cotton and camphire which they ſet on fire to amuſe the company.

Like other birds of the poultry kind, the peacock feeds upon corn; but barley is its favourite food. But there is ſcarcely any food that it will not at times covet and purſue. In the indulgence of theſe capricious purſuits, walls cannot eaſily confine it: it ſtrips the tops of houſes of their tiles or thatch, it lays waſte the labours of the gardener, roots up his choiceſt ſeeds, and nips his favourite flowers in the bud. Thus its beauty but ill recompenſes for the miſchief it does; and many of the more homely looking fowls are very deſervedly preferred before it.

The pea-hen ſeldom lays above five or ſix eggs in this climate before ſhe ſits. Ariſtotle repreſents her as laying twelve; and it is probable, that in her native climate, ſhe does ſo: for it is certain, that in the foreſts where they breed naturally, they are numerous beyond expreſſion. The bird lives about twenty years; and not till its third year has it that beautiful variegated plumage that adorns its tail.

The Turkey.

The natal place of the cock and the peacock is pretty well aſcertained, but there are ſtronger doubts concerning the turkey. Some contend that it has been brought into Europe from the Eaſt-Indies many centuries ago. Others aſſert, that it is wholly unknown in that part of the world, that it is a native of the New Continent, and that it was not brought into Europe till the diſcovery of that part of the world.

With us, when young, they are the tendereſt of all birds; yet, in their wild ſtate, they abound in the foreſts of Canada, which are covered with ſnow above three parts of the year. In their natural woods, they are found much larger than in their ſtate of ſtomeſtic captivity. They are much more beautiful alſo, their feathers being of a dark grey, bordered at the edges with a bright gold colour. Theſe the ſavages of the country weave into cloaks to adorn their perſons, and faſhion into fans and umbrellas, but never once think of domeſticating animals that the woods furniſh them with in ſufficient abundance. Savage man ſeems to find a delight in precarious poſſeſſion. The hunting of the turkey, therefore, makes one of his principal diverſions; as its fleſh contributes chiefly to the ſupport of his family. When he has diſcovered the place of their retreat, which, in general, is near fields of nettles, or where there is plenty of any kind of grain, he takes his dog, which is trained to the ſport, and ſends him into the midſt of the flock. The turkies no ſooner perceive their enemy, than they run off at full ſpeed, and with ſuch amazing ſwiftneſs that they far outſtrip the dogs. He continues his purſuit however, and ſenſible they muſt ſoon be tired, as they cannot go faſt for any length of time, he, at laſt, forces them to take ſhelter in a tree, where they ſit quite ſpent and fatigued, till the huntſman comes up, and with a long pole, knocks them down.

This manner of ſuffering themſelves to be deſtroyed, argues no great inſtinct in the animal; and indeed, in their captive ſtate, they do not appear to be poſſeſſed of much. They ſeem a ſtupid, vain, querulous tribe,

tribe, apt enough to quarrel among themſelves, although deſtitute of any hurtful weapons. Every body knows the ſtrange antipathy the turkey-cock has to a red colour. But there is another method of increaſing the animoſity of theſe birds againſt each other, which is often practiſed by boys, when they have a mind for a battle. This is no more than to ſmear over the head of one of the turkies with dirt, and the reſt run to attack it with all the ſpeed of impotent animoſity: nay, two of them thus diſguiſed, will fight each other till they are almoſt ſuffocated with fatigue and anger.

But though ſo furious among themſelves, they are weak and cowardly againſt other animals. The cock often makes the turkey keep at a diſtance; and they ſeldom venture to attack him but with united force, when they rather oppreſs him by their weight, than annoy him by their arms. There is no animal, how contemptible ſoever, that will venture boldly to face the turkey-cock, that he will not fly from. On the contrary, with the inſolence of a bully, he purſues any thing that ſeems to fear him, particularly lap dogs and children, againſt both which he ſeems to have a peculiar averſion.

The female ſeems of a milder, gentler diſpoſition. She lays eighteen or twenty eggs. Her young muſt be carefully fed with curd chopped with dock leaves; but as they grow older, they become more hardy, and follow the dam to conſiderable diſtances, in purſuit of inſect food, which they prefer to any other. When once grown up, turkeys are very hardy birds, and feed themſelves with very little expence to the farmer. Thoſe of Norfolk are ſaid to be the largeſt of this kingdom, weighing from twenty to thirty pounds. There are places, however, in the Eaſt Indies, where, in their domeſtic ſtate, they grow to the weight of ſixty pounds.

The Pheaſant.

It would ſurpriſe the ſportſman to be told that the pheaſant which he finds wild in the woods, in the remoteſt parts of the kingdom, is a foreign bird, and was at firſt artificially propagated among us. They were brought into Europe from the banks of the Phaſis, a river of Colchis, in Aſia Minor, from which they take their name.

Next to the peacock, they are the moſt beautiful birds, as well for the vivid colour of their plumes, as for their happy mixtures and variety. It is far beyond the power of the pencil to draw any thing ſo gloſſy, ſo bright, or with points ſo finely blending into each other. We are told that when Crœſus, king of Lydia, was ſeated on his throne, adorned with royal magnificence, and all the barbarous pomp of eaſtern ſplendour, he aſked Solon if he had ever beheld any thing ſo fine! The Greek philoſopher, taking a pride in his native ſimplicity, replied, that after having ſeen the beautiful plumage of the pheaſant he could be aſtoniſhed at no other finery.

In fact, nothing can ſatisfy the eye with a greater variety and richneſs of ornament than this beautiful creature. The iris of the eyes is yellow; and the eyes themſelves are ſurrounded with a ſcarlet colour, with ſmall ſpecks of black. On the fore-part of the head there are blackiſh feathers mixed with a ſhining purple. The top of the head and the upper part of the neck are tinged with a darkiſh green that ſhines like ſilk. In ſome, the top of the head is of a ſhining blue, and the head itſelf, as well as the upper part of the neck, appears ſome-

times blue and ſometimes green, as it is differently preſented to the eye of the ſpectator. The feathers of the breaſt, the ſhoulders, the middle of the back, and the ſides under the wings, have a blackiſh ground, with edges tinged of an exquiſite colour, which appears ſometimes black and ſometimes purple, according to the different lights in which it is viewed. Under the purple there is a tranſverſe ſtreak of gold colour. The tail, from the middle feathers to the root, is about eighteen inches long: the legs, the feet, and the toes, are of the colour of horn. There are black ſpurs on the legs, ſhorter than thoſe of a cock: there is alſo a membrane that connects two of the toes together; and the male is much more beautiful than the female.

This bird, though ſo beautiful to the eye, is not leſs delicate when ſerved up to the table. Its fleſh is conſidered as the greateſt dainty; and when the old phyſicians ſpoke of the wholeſomeneſs of any viands, they made their compariſon with the fleſh of the pheaſant. In the woods, the hen pheaſant lays from eighteen to twenty eggs in a ſeaſon; but in a domeſtic ſtate ſhe ſeldom lays above ten. Its fecundity when wild is ſufficient to ſtock the foreſt; its beautiful plumage adorns it; and its fleſh retains a higher flavour from its unlimited freedom.

The pheaſant, when full grown, ſeems to feed indifferently upon every thing that offers. It is ſaid by a French writer, that one of the king's ſportſmen ſhooting at a parcel of crows, that were gathered round a dead carcaſe, to his great ſurpriſe upon coming up, found that he had killed as many pheaſants as crows. It is even aſſerted by ſome, that ſuch is the carnivorous diſpoſition of this bird, that when ſeveral of them are put together in the ſame yard, if one of them happen to fall ſick, or ſeem to be pining, that the reſt will devour it.

Of the pheaſant, as of all other domeſtic fowls, there are many varieties. There are white pheaſants, creſted pheaſants, ſpotted pheaſants; but of all others, the golden pheaſant of China is the moſt beautiful. It is even a doubt whether the peacock itſelf can bear the compariſon.

The Pintada or Guinea-Hen.

This is a very remarkable bird, and in ſome meaſure unites the characteriſtics of the pheaſant and the turkey. It has the fine delicate ſhape of the one, and the bare head of the other. To be more particular, it is about the ſize of a common hen; but as it is ſupported on longer legs, it appears much larger. It has a round back, with a tail turned downwards like a partridge. The head is covered with a kind of caſque; and the whole plumage is black or dark grey, ſpeckled with white ſpots. It has wattles under the bill, which do not proceed from the lower chap as in cocks, but from the upper, which gives it a very peculiar air, while its reſtleſs gait and odd chuckling ſound diſtinguiſh it ſufficiently from any other bird whatever.

It is well known all over Europe, and we find it under different names in different countries, from the place whence they had it. We have given it the name of that part of Africa from whence probably it was firſt brought.

In many parts of their native country, they are ſeen in vaſt flocks together, feeding their young, and leading them in queſt of food. All their habits are like thoſe of the poultry kind, and they agree in every other reſpect, except that the male and female are ſo much alike, that they can hardly be diſtinguiſhed when they are ſeparate. Their eggs, like

like their bodies, are ſpeckled; in our climate, they lay but five or ſix in a ſeaſon; but they are far more prolific in their own ſultry regions.

The Buſtard.

The Buſtard is the largeſt land bird that is a native of Britain. It was once much more numerous than it is at preſent; but the increaſed cultivation of the country, and the extreme delicacy of its fleſh, has greatly thinned the ſpecies. The period, therefore, may come when it may be doubted whether ever ſo large a bird was bred among us. It is probable that long before this the buſtard would have been extirpated, but for its peculiar manner of feeding. It inhabits only the open and extenſive plain, where its food lies in abundance, and where every invader may be ſeen at a diſtance.

The buſtard is much larger than the turkey, the male generally weighing from twenty-five to twenty-ſeven pounds. The neck is a foot long, and the legs are a foot and a half. The wings are not proportionable to the reſt of the body, being but four feet from the tip of the one to that of the other; for which reaſon the bird flies with great difficulty. The head and neck of the male are aſh-coloured: the back is barred tranſverſely with black, bright, and ruſt colour. The greater quill feathers are black; the belly is white; and the tail, which conſiſts of twenty feathers, is marked with broad black bars.

The buſtards are frequently ſeen in flocks of fifty or more, in the extenſive downs of Saliſbury Plain, in the heaths of Suſſex and Cambridgeſhire, the Dorſetſhire uplands, as far as Eaſt Lothian in Scotland. In thoſe extenſive plains, where there are no woods to ſcreen the ſportſman, nor hedges to creep along, the buſtards enjoy an indolent ſecurity. Their food conſiſts of the berries that grow among the heath, and the large earth-worms that appear in great quantities on the downs before ſun-riſing in ſummer. It is in vain that the fowler creeps forward to approach them, they have always centinels placed at proper eminences, which are ever on the watch, and warn the flock of the ſmalleſt appearance of danger. All therefore that is left the ſportſman, is the comfortleſs view of their diſtant ſecurity. He may wiſh, but they are in ſafety.

It ſometimes happens that theſe birds, though they are ſeldom ſhot by the gun, are run down by grey-hounds. As they are voracious and greedy, they often ſacrifice their ſafety to their appetite, and feed themſelves ſo very fat, that they are unable to fly without great preparation. When the grey-hound, therefore, comes within a certain diſtance, the buſtard runs off flapping its wings, and endeavours to gather air enough under them to riſe. In the mean time, the enemy approaches nearer and nearer, till it is too late for the bird even to think of obtaining ſafety by flight; for juſt at the riſe there is always time loſt, of which the bird is ſenſible. It continues, therefore, on the foot until it has got a ſufficient way before the dog for flight, or until it is taken.

As there are but few places where they can at once find proper food and ſecurity, ſo they generally continue near their old haunts; and ſeldom wander above twenty or thirty miles from home. As their food is replete with moiſture, it enables them to live upon theſe dry plains, where there are ſcarcely any ſprings of water. Beſides this, Nature has given the males an admirable magazine for their ſecurity

againſt thirſt. This is a pouch, the entrance of which lies immediately under the tongue, and capable of holding near ſeven quarts of water. This is probably filled upon proper occaſions, to ſupply the hen when ſitting, or the young before they can fly.

They make their neſts upon the ground, only juſt ſcraping a hole in the earth, and ſometimes lining it with a little long graſs or ſtraw. There they lay two eggs only, almoſt of the ſize of a gooſe-egg, of a pale olive brown, marked with ſpots of a darker colour. They hatch for about five weeks, and the young ones run about as ſoon as they are out of the ſhell.

The Cock of the wood, the *Black Cock*, the *Grous*, and the *Ptarmigan* —Are all birds of a ſimilar nature, and are chiefly found in heathy mountains and piny foreſts, far removed from the abodes of men. They might once indeed have been common enough over all England, when a great part of that country was covered with heath; but at preſent their numbers are thinned. The two firſt of this kind are utterly unknown in the ſouth, and have taken refuge in the northern parts of Scotland, where the extenſive heaths afford them ſecurity, and the foreſts ſhelter.

The cock of the wood is ſometimes of the ſize of a turkey, and often weighs near fourteen pounds. The black cock, of which the male is jet black, though the female is of the colour of a partridge, is about the ſize of a hen, and, like the former is only found with us in the Highlands of Scotland. The grous is about half as large again as a partridge, and its colour is much like that of a wood-cock, but redder.

The ptarmigan is ſtill ſomewhat leſs, and is of a pale brown or aſh colour. They are all diſtinguiſhable from other birds of the poultry kind, by a naked ſkin, of a ſcarlet colour, above the eyes, in the place and of the figure of eye-brows.

The *cock* of the *wood*, when in the foreſt, attaches himſelf principally to the oak and the pine tree; the cones of the latter ſerving for his food, and the thick boughs for his abode. He feeds alſo upon ants eggs, which ſeem a high delicacy to all birds of the poultry kind: cranberries are likewiſe often found in his crop. The female is much leſs than her mate, and entirely unlike him in plumage, ſo that ſhe might be miſtaken for a bird of another ſpecies. She ſeldom lays more than ſix or ſeven eggs, which are white, and marked with yellow, of the ſize of a common hen's egg. She generally lays them in a dry place and a moſſy ground; and when ſhe is obliged, during the time of incubation, to leave her eggs in queſt of food, ſhe covers them up ſo artfully, with moſs or dry leaves, that it is extremely difficult to diſcover them.

As ſoon as the young ones are hatched, they run with extreme agility after the dam, though ſometimes they are not entirely diſengaged from the ſhell. They ſoon arrive at maturity. They are an hardy bird, their food lies every where before them, and it would ſeem that they ſhould increaſe in great abundance. But this is not the caſe; their numbers are thinned by rapacious birds and beaſts of every kind; and ſtill more by their own ſalacious conteſts. They fight each other, like game cocks; and are ſo inattentive to their own ſafety, that it often happens that two or three of them are killed at a ſhot. It is probable, that in theſe conteſts, the bird which comes off victorious takes poſſeſ-

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ſion of the female ſeraglio; for it is certain they have no faithful attachments.

Of Partridges.

Of Partridges there are two kinds; the grey and the red. The red partridge is the largeſt of the two, and often perches upon trees; the grey, with which we are beſt acquainted in England, is moſt prolific, and always keeps on the ground.

The partridge ſeems to be a bird well known all over the world, as it is found in every country, and in every climate. It even ſeems to adapt itſelf to the nature of the climate where it reſides. In Greenland, the partridge, which is brown in ſummer, as ſoon as the icy winter commences, begins to take a covering ſuited to the ſeaſon. It is then clothed with a warm down beneath; and its outward plumage aſſumes the colour of the ſnows amongſt which it ſeeks its food. The manners of the partridge in moſt circumſtances, reſemble thoſe of the poultry in general; but their cunning and inſtinct ſeems ſuperior to thoſe of the larger kinds. Perhaps, as they live in the very neighbourhood of their enemies, they have more frequent occaſion to put their little arts in practice; and learn, by habit, the means of evaſion or ſafety. Whenever, therefore, a dog or other formidable animal approaches their neſt, the female uſes every artifice in order to entice him away. She keeps juſt before him, pretends to be incapable of flying, juſt hops up, and then falls down before him, but never goes off ſo far as to diſcourage her purſuer. At length, when ſhe has allured him entirely away from her ſecret treaſure, ſhe at once takes wing, and fairly leaves him to gaze after her in deſpair.

When the danger is over, and the dog withdrawn, ſhe then calls her young who aſſemble at once at her cry, and follow her. Generally there are from ten to fifteen in a covey; and, if unmoleſted, they live about ſixteen or ſeventeen years.

The Quail.

The Quail is a bird much ſmaller than any of the former, being not above half the ſize of a partridge. The feathers of the head are black, edged with ruſty brown. The breaſt is of a pale yelloviſh red, ſpotted with black. The feathers on the back are marked with lines of pale yellow, and the legs are of a pale hue.

Every body knows that the quail is a bird of paſſage; and yet if we conſider its heavy manner of flying, and its dearth of plumage, with reſpect to its corpulence, we ſhall be ſurpriſed how a bird ſo apparently ill qualified for migration, ſhould take ſuch extenſive journeys. Nothing however is more certain. "When we ſailed from Rhodes to Alexandria," ſays Bellonius, "about autumn, many quails, flying from the north to the ſouth, were taken in our ſhip; and ſailing at ſpring-time the contrary way, from the ſouth to the north, I obſerved them on their return when many of them were taken in the ſame manner." This account is confirmed by many others; who aver, that they chuſe a north wind for theſe adventures; the ſouth wind retarding their flight, by moiſtening their pulmage. They then fly two by two; and when their way lies over land, they make more ſpeed by night than by day. They alſo fly very high, to avoid being ſurpriſed or ſet upon by birds of prey. It is now, however, aſſerted by ſome, that the quail only migrates from one province of a country to another. For inſtance,

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that in England, they fly from the inland counties, to thoſe bordering on the ſea, and continue there all winter.

Theſe birds are much leſs prolific than the partridge; ſeldom laying more than ſix or ſeven whitiſh eggs, marked with ragged, ruſt-coloured ſpots. Quail-fighting was a favorite amuſement among the Athenians. They abſtained from the fleſh of this bird ſuppoſing that it fed upon the white hellebore. Notwithſtanding this, they reared great numbers of them, for the pleaſure of ſeeing them fight; and ſtaked ſums of money, as we do with regard to cocks, upon the ſucceſs of the combat. Faſhion, however, has at preſent changed with regard to this bird; we take no pleaſure in its courage, but its fleſh is conſidered as a very great delicacy.

CHAP. XXV.

OF BIRDS OF THE PIE SPECIES.—THE RAVEN.—THE CROW.—THE MAGPIE.—THE ROLLER.—THE TOUCAN.—THE WOODPECKER.—THE BIRD OF PARADISE.—THE CUCKOO.—THE PARROT, MACKAW, PAROKEET, &C.—THE PIGEON.

THE RAVEN, the CARRION-CROW, and the ROOK, are birds ſo well known, that a long deſcription would but obſcure our ideas of them. The raven is the largeſt of the three, and diſtinguiſhed from the reſt not only by his ſize, but by his bill which is ſomewhat more hooked than that of the reſt. As for the carrion-crow and the rook, they ſo ſtrongly reſemble each other, both in make and ſize, that they are not eaſily diſtinguiſhed when ſeparated. The chief difference to be found between them conſiſts in the bill of the rook; which, by frequently being thruſt into the ground to fetch out grubs and earth-worms, is without feathers as far as the eyes, and appears of a whitiſh colour. It differs alſo in the purple ſplendour or gloſs of its feathers, which in the carrion-crow are of a more dirty-black. Nor is it amiſs to make theſe diſtinctions, as the rook has but too frequently ſuffered for its ſimilitude to the carrion-crow. Hence a harmleſs bird, that feeds only upon inſects and corn, has been deſtroyed for another that feeds upon carrion, and is often deſtructive among young poultry.

The *raven* is a bird found in every region of the world; ſtrong and hardy, he is uninfluenced by the changes of the weather. Thus when other birds ſeem numbed with cold, or pining with famine, the raven is active and healthy, buſily employed in prowling for prey, or ſporting in the coldeſt atmoſphere. As the heats at the line do not oppreſs him, ſo he endures the cold of the polar countries with equal indifference. He is ſometimes indeed ſeen milk white, and this may probably be the effect of the rigorous climates of the north. A raven may be reclaimed to almoſt every purpoſe to which birds can be converted. He may be trained up for fowling like an hawk: he may be taught to fetch and carry like a ſpaniel: he may be taught to ſpeak like a parrot; but the moſt extraordinary of all is, that he can be taught to ſing like

a man. I have heard a raven ſing the Black Joke with great diſtinctneſs, truth, and humour.

Indeed, when the raven is taken as a domeſtic, he has many qualities that render him extremely amuſing. Buſy, inquiſitive, and impudent, he goes every where, affronts and drives off the dogs, plays his pranks on the poultry, and is particularly aſſiduous in ingratiating himſelf with the cook maid. But then, with the amuſing qualities of a favourite, he often alſo has the vices and defects. He is a glutton by nature, and a thief by habit. He does not confine himſelf to petty depredations on the pantry or the larder: he ſoars at more magnificent plunder; at ſpoils which he can neither exhibit nor enjoy; but which, like a miſer, he reſts ſatisfied with having the ſatisfaction of ſometimes viſiting and contemplating in ſecret. A piece of money, a tea-ſpoon, or a ring, are always tempting baits to his avarice. Theſe he will ſlily ſeize upon, and, if not watched, will carry to his favourite hole.

In his wild ſtate, the raven is an active and greedy plunderer. Nothing comes amiſs to him. If in his flights he perceive no hopes of carrion, and his ſcent is ſo exquiſite, that he can ſmell it at a vaſt diſtance; he then contents himſelf with more unſavoury food, fruits, inſects, and the accidental deſert of a dunghill. This bird generally builds its neſt in trees, and lays five or ſix eggs of a pale green colour, marked with ſmall browniſh ſpots.

Notwithſtanding the injury theſe birds do in picking out the eyes of ſheep and lambs, when they find them ſick and helpleſs, a vulgar reſpect is paid them as being the birds that fed the prophet Elijah in the wilderneſs. This pre-poſſeſſion in favour of the raven is of very ancient date, as the Romans themſelves, who thought the bird ominous, paid it, from motives of fear, the moſt profound veneration. One of theſe that had been kept in the temple of Caſtor, as Pliny informs us, flew down into the ſhop of a taylor, who took much delight in the viſits of his new acquaintance. He taught the bird ſeveral tricks: but particularly to pronounce the name of the emperor Tiberius and the whole royal family. The taylor was beginning to grow rich by thoſe who came to ſee this wonderful raven, till an envious neighbour, killed the bird, and deprived the taylor of his future hopes of fortune. The Romans, however, took the poor taylor's part; they puniſhed the man who offered the injury, and conferred on the raven all the honours of a magnificent interment.

Birds in general live longer than quadrupeds; and the raven is ſaid to be one of the moſt long-lived of the number. Some of them have been known to live near an hundred years. This animal, indeed, ſeems poſſeſſed of thoſe qualities that generally produce longevity, a good appetite, and great exerciſe.

The *carrion-crow* reſembles the raven in its appetites, its laying, and manner of rearing its young. It only differs in being leſs bold, leſs docile, and leſs favoured by mankind.

The *rook* leads the way in another, but a more harmleſs train, that have no carnivorous appetites, but only feed upon inſects and corn. The Royſton crow is about the ſize of the two former. The breaſt, belly, back, and upper part of the neck, are of a pale aſh-colour: the head and wings are gloſſed over with a fine clue. He is a bird of paſſage, viſiting this kingdom in the beginning of winter, and leaving it in

in the ſpring. He breeds, however, in different parts of the Britiſh dominions; and his neſt is common enough in trees in Ireland. The jack-daw is black, like all the former, but aſh-coloured on the breaſt and belly. He is not above the ſize of a pigeon. He is docile and loquacious. His head is large for the ſize of his body, which, indicates him to be ingenious and crafty. The female builds in ſteeples, old caſtles, and high rocks, and lays five or ſix eggs in a ſeaſon. The Corniſh chough is like a jack daw, but larger, and almoſt the ſize of a crow. The feet and legs are long like thoſe of a jack-daw, but a red colour; and the plumage is wholly black. It frequents rocks, old caſtles, and churches, by the ſea-ſide, like the daw; and with the ſame noiſy aſſiduity. It is only ſeen along the weſtern coaſts of England. Theſe are birds very ſimilar in their manners, feeding on grain and inſects, living in ſociety, and often ſuffering general chaſtiſement from the flock for the good of the community.

To this tribe of the craw-kind, ſome foreign ſorts might be added. I will take notice only of one, which, from the extraordinary ſize and faſhion of its bill, muſt not be omitted. This is the *Calao*, or horned Indian raven, which exceeds the common raven in ſize, and habits of depredation. But what he differs in from all other birds, is the beak, which, by its length and curvature at the end, appears deſigned for rapine, but then it has a kind of horn ſtanding out from the top, which is ſomewhat like a ſecond bill, and gives this bird, otherwiſe fierce and deformed, a very formidable appearance. The horn ſprings out of the forehead, and grows to the upper part of the bill, being of great bulk; ſo that near the forehead it is four inches broad, not unlike the horn of the rhinoceros, but more crooked at the tip. In ſuch of thoſe birds as come from different parts of Africa, the body is proportionable to the beak. In ſuch however, as come from the Molucca Iſlands, the beak bears no proportion to the body.

The Magpie.

The Magpie is too well known to need any deſcription. Indeed, were its other accompliſhments equal to its beauty, few birds could be put in competition with it. Its black, its white, its green and purple, with the rich and gilded combination of the gloſſes on its tail, are as fine as any that adorn the moſt beautiful of the feathered tribe. But it has too many of the qualities of a beau, to depreciate theſe natural perfections. Vain, reſtleſs, loud, and quarrelſome, it is an unwelcome intruder every where; and never miſſes an opportunity to do miſchief.

The magpie bears a great reſemblance to the butcher-bird in its bill, which has a ſharp proceſs near the end of the upper chap, as well as in the ſhortneſs of its wings, and the form of the tail, each feather ſhortening from the two middlemoſt. But it agrees ſtill more in its food, living not only upon worms and inſects, but alſo upon ſmall birds, when they can be ſeized. A wounded lark, or a young chicken ſeparated from the hen, are ſure plunder; and the magpie will even ſometimes ſeize a black-bird.

The ſame inſolence prompts it to teaze the largeſt animals when its inſults can be offered with ſecurity. They often are ſeen perched upon the back of an ox or a ſheep, pecking up the inſects to be found there, chattering and tormenting the poor animal at the ſame time, and ſtretching out their necks for combat, if the beaſt turns its head againſt them

them. They ſeek out alſo the neſts of birds; and, if the dam eſcape, the eggs make up for the deficiency. The thruſh and the black-bird are but too frequently robbed by this aſſaſſin, and this in ſome meaſure occaſions their ſcarcity.

No food ſeems to come amiſs to this bird; it ſhares with ravens in their carrion, with rooks in their grain, and with the cuckoo in the eggs of birds: but it ſeems poſſeſſed of a prudence ſeldom uſual with gluttons: for when it is ſatisfied for the preſent, it lays up the remainder of the feaſt for another occaſion. It will even in a tame ſtate hide its food, and after a time return to the ſecret hoard with renewed appetite and vociferation.

In all its habits it diſcovers a degree of inſtinct unuſual to other birds. Its neſt is not leſs remarkable for the place in which it is built. The neſt is uſually placed conſpicuous enough, either in the middle of ſome hawthorn buſh, or on the top of ſome high tree. The place, however, is always found difficult of acceſs; for the tree pitched upon uſually grows in ſome thick hedge-row, fenced by brambles at the root; or ſometimes one of the higher buſhes is fixed upon for the purpoſe. When the place is thus choſen as inacceſſible as poſſible to men, the next care is to fence the neſt above. The kite, the crow, and the ſparrow-hawk, are to be guarded againſt; as their neſts have been ſometimes plundered by the magpie, ſo it may be naturally thought that they will take the firſt opportunity to retaliate. To prevent this, the magpie's neſt is built with ſurpriſing labour and ingenuity.

The body of the neſt is compoſed of hawthorn branches; and thorns ſticking outward, but well united together by their mutual inſertions. Within it is lined with fibrous roots, wool, and long graſs, and then nicely plaiſtered all round with mud and clay. The body of the neſt being thus made firm and commodious, the next work is to make the canopy which is to defend it above. This is compoſed of the ſharpeſt thorns, interwoven in ſuch a manner as to deny all entrance except at the door, which is juſt large enough to permit the owners to go in and out. In this fortreſs the male and female hatch and bring up their brood with ſecurity, ſheltered from all attacks but thoſe of the climbing ſchool-boy, who often finds his torn and bloody hands too dear a price for the eggs or the young ones. The magpie lays ſix or ſeven eggs, of a pale green colour, ſpotted with brown.

This bird, in its domeſtic ſtate, preſerves its natural character with ſtrict propriety. The ſame noiſy, miſchievous habits attend it to the cage that marked it in the woods; and being more cunning, ſo it is alſo a more docile bird than any other. Thoſe who are deſirous of teaching it to ſpeak, have a fooliſh cuſtom of cutting its tongue, which only puts the poor animal to pain, without improving its ſpeech in the leaſt. Its ſpeaking is ſometimes very diſtinct; but its ſounds are too thin and ſharp to be an exact imitation of the human voice, which the hoarſe raven and parrot can counterfeit more exactly.

The Jay.

To this tribe we may refer the jay, which is one of the moſt beautiful of the Britiſh birds. The forehead is white, ſtreaked with black; the head is covered with very long feathers, which it can erect into a creſt at pleaſure. The whole neck, back, breaſt, and belly, are of a faint purple, daſhed with grey. The wings are moſt exquiſitely barred

with a beautiful blue, black, and white. The tail is black, and the feet are of a pale brown. Like the magpie, it feeds upon fruits, will kill ſmall birds, and is extremely docile.

The Chatterer.

The chatterer alſo, which is a native of Germany, may be ranked in this claſs; and is ſomewhat leſs than the former. It is variegated with a mixture of colours; red, aſh colour, cheſnut, and yellow.

The Roller.

The roller is not leſs beautiful than any of the former. Its breaſt and belly are blue: its head is green; and the wings are variegated with blue, black, and white. But it may be diſtinguiſhed from all others by a ſort of naked tubercles or warts near the eyes, which contribute to increaſe its beauty.

To this claſs may be added a numerous liſt from all the tropical foreſts of the eaſt and weſt. I will fix only upon one, the *Toucan*, a bird of the pie kind, whoſe bill is nearly as large as the reſt of its whole body.

Of this extraordinary bird there are four or five varieties. I ſhall only deſcribe the red-beaked toucan. It is about the ſize of, and ſhaped like a jack-daw, with a large head to ſupport its monſtrous bill. This bill, from the angles of the mouth to its point, is ſix inches and an half; and its breadth, in the thickeſt part, is a little above two. Its thickneſs near the head, is one inch and a quarter; and it is a little rounded along the top of the upper chap, the under ſide being round alſo. The whole of the bill is extremely ſlight, and a little thicker than parchment. The upper chap is of a bright yellow, except on each ſide, which is of a fine ſcarlet colour; as is alſo the lower chap, except at the baſe which is purple. Between the head and the bill there is a black line of ſeparation all round the baſe of the bill. In the upper part of this bill the noſtrils are placed, and are almoſt covered with feathers; which has made ſome writers to ſay, that the toucan has no noſtrils. Round the eyes, on each ſide of the head, is a ſpace of bluiſh ſkin, without feathers, above which the head is black, except a white ſpot on each joining to the baſe of the upper chap. The hinder part of the neck, the back, wings, tail, belly, and thighs, are black. The under ſide of the head, throat, and the beginning of the breaſt, are white. Between the white on the breaſt, and the black on the belly, is a ſpace of red feathers, in the form of a new moon, with its horns upwards. The legs, feet and claws, are of an aſh-colour; and the toes ſtand like thoſe of parrots, two before, and two behind.

It is reported, by travellers, that this bird, though furniſhed with ſo formidable a beak, is harmleſs and gentle, being ſo eaſily tamed, as to ſit and hatch its young in houſes. It feeds chiefly upon pepper, which it devours very greedily, gorging itſelf in ſuch a manner, that it voids it crude and unconcocted. This, however, is no objection to the natives from uſing it again. They even prefer it before that pepper which is freſh gathered from the tree; and ſeem perſuaded that the ſtrength and heat of the pepper is qualified by the bird, and that all its noxious qualities are thus exhauſted.

This bird is only found in the warm climates of South America, where it is highly prized, both for the delicacy of its fleſh, which is tender and nouriſhing, and for the beauty of its plumage, particularly the

the feathers of the breaſt. The ſkin of this part the Indians pluck off, and when dry, glue it to their cheeks; and conſider it as an irreſiſtible addition to their beauty.

The Woodpeckers.

Theſe birds live chiefly upon the inſects contained in trees; and for this purpoſe they are furniſhed with a ſtraight, hard, ſtrong, angular and ſharp bill, made for piercing and boring. They have a tongue of a very great length; round, ending in a ſharp, ſtiff, bony thorn, dentated on each ſide, to ſtrike ants and inſects when diſlodged from their cells. Their legs are ſhort and ſtrong, for the purpoſes of climbing. Their toes ſtand two forward, and two backward; which is particularly ſerviceable in holding by branches of trees. They have hard ſtiff tails, to lean upon when climbing. They feed only upon inſects, and want that inteſtine, which anatomiſts call the cecum; a circumſtance peculiar to this tribe.

Of this bird there are many kinds, and many varieties in each kind. They form large colonies in the foreſts of every part of the world. They differ in ſize, colour, and appearance; and agree only in the marks above-mentioned, or in thoſe habits which reſult from ſo peculiar a conformation. Inſtead, therefore, of deſcending into a minute diſcrimination of every ſpecies, let us take one for a pattern. The Green Wood-ſpite or Wood-pecker is called the Rain Fowl in ſome parts of the country; becauſe, when it makes a greater noiſe than ordinary, it is ſuppoſed to foretell rain. It is about the ſize of a jay; the throat, breaſt and belly are of a pale greeniſh colour; and the back, neck and covert feathers of the wings are green. But the tongue makes its moſt diſtinguiſhed characteriſtic, as it ſerves for its ſupport and defence. As was ſaid above, the wood-pecker feeds upon inſects; and particularly on thoſe which are lodged in the body of hollow or of rotting trees. The tongue is its inſtrument for killing and procuring this food; which cannot be found in great plenty. This is round, ending in a ſtiff, ſharp, bony tip, dentated on both ſides, like the beard of an arrow; and this it can dart out three or four inches from the bill, and draw in again at pleaſure. Its prey is thus transfixed, and drawn into the bill, which, when ſwallowed, the dart is again launched at freſh game.

The wood-pecker, however, does not confine its depredations ſolely to trees, but ſometimes lights upon the ground, to try its fortune at an ant-hill. The wood pecker firſt goes to their hills, which it pecks, in order to call them abroad; it then thruſts out its long red tongue, which being like a worm, and reſembling their uſual prey, the ants crowd out to ſettle upon it. However, the bird watching the propereſt opportunity, withdraws its tongue at a jerk, and devours the devourers. This ſtratagem is continued till it has alarmed their fears; or till it is quite ſatisfied.

As the wood pecker is obliged to make holes in trees to procure food, ſo is it alſo to make cavities ſtill larger to form its neſt and to lay in. This is performed, as uſual, with the bill; although ſome have affirmed that the animal uſes its tongue, as a gimblet, to bore with. But this is a miſtake; and thoſe that are curious, may often hear the noiſe of the bill making its way in large woods and foreſts. The wood-pecker chuſes, however, for this purpoſe, trees that are decayed, or wood that is ſoft, like beech, elm and poplar. In theſe, with very

little trouble, it can make holes as round as a mathematician could do with compaſſes. One of theſe holes the bird generally chuſes for its own uſe, to neſtle, and bring up its young in. As they are eaſily made, it is delicace in its choice, and often makes twenty before one is found fit to give entire ſatisfaction.

The wood-pecker takes no care to line its neſt with feathers or ſtraw; its eggs are depoſited in the hole, without any thing to keep them warm, except the heat of the body of the dam. Their number is generally five or ſix; always white, oblong, and of a middle ſize. When the young are excluded, and before they leave the neſt, they are adorned with a ſcarlet plumage under the throat, which adds to their beauty.

In Guinea and Braſil, the birds of this ſpecies take a different method to protect and hatch their progeny. A traveller who walks into the foreſts of thoſe countries, among the firſt objects that excite curioſity, is ſtruck with the multitude of birds neſts hanging at the extremity of almoſt every branch. Many other kind of birds build in this manner; but the chief of them are of the wood-pecker kind. In cultivated countries, a great part of the caution of the feathered tribe is to hide or defend their neſts from the invaſions of man, as he is their moſt dreaded enemy. But in the depth of thoſe remote and ſolitary foreſts, where man is but ſeldom ſeen, if the monkey or the ſnake can be eluded, the bird has no other enemy to fear. On the bananas and plantanes of theſe regions, is ſeen the moſt various, and the moſt hoſtile aſſemblage of creatures that can be imagined. The top is inhabited by monkies of ſome particular tribe, that drive off all others. Lower down about the great trunk numbers of the larger ſnakes are found patiently waiting till ſome unwary animal comes within the ſphere of their activity; and at the edges of the tree hang theſe artificial neſts, in great abundance, inhabited by birds of the moſt beautiful plumage.

The neſt is uſually formed in this manner. When the time of incubation approaches, they fly buſily about, in queſt of a kind of moſs, called, by the Engliſh inhabitants of thoſe countries, *old man's beard.* It is a fibrous ſubſtance, and not very unlike hair, which bears being moulded into any form, and ſuffers being glued together. This, therefore, the little wood-pecker, called by the natives of Braſil, the Guiratemga, firſt glues by ſome viſcous ſubſtance, gathered in the foreſt, to the extremeſt branch of a tree. Then building downward, and ſtill adding freſh materials to thoſe already procured, a neſt is formed, that depends, like a pouch, from the point of the branch. The hole to enter at, is on the ſide; and all the interior parts are lined with the finer fibres of the ſame ſubſtance, which compoſe the whole.

Such is the general contrivance of theſe hanging neſts; which are made, by ſome other birds, with ſtill greater art. A little bird of the Groſbeak kind, in the Philippine iſlands, makes its neſt in ſuch a manner, that there is no opening but from the bottom. At the bottom the bird enters, and goes up through a funnel, like a chimney, till it comes to the real door of the neſt, which lies on one ſide, and only opens into this funnel.

Of the Bird of Paradiſe.

There are two kinds of the Bird of Paradiſe; one about the ſize of a pigeon, which is more common; the other not much larger than a lark, which has been deſcribed more perfectly.

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The larger of theſe birds appears to be nearly as big as a pigeon, though in reality the body is not much bigger than that of a thruſh. Its tail, which is about ſix inches, is as long as its body; and its wings are large in proportion to its other dimenſions. The head, the throat and the neck are of a pale gold colour. The baſe of the bill is ſurrounded by black feathers, as is alſo the ſide of the head and throat, as ſoft as velvet, and changeable like thoſe on the neck of a mallard. The hinder part of the head is of a ſhining green, mixed with gold. The body and wings are chiefly covered with beautiful brown, purple and gold feathers. The uppermoſt part of the tail feathers are of a pale yellow, and thoſe under them white and longer than the former; for which reaſon the hinder part of the tail appears to be entirely white. But what chiefly excites curioſity are, two long naked feathers, which ſpring from the upper part of the rump above the tail, and which are for the moſt part about three feet long. Theſe are bearded only at the beginning and the end; the whole ſhaft for above two feet nine inches being of a deep black, while the feathered extremity is of a changeable colour, like the mallard's neck.

Theſe birds, which for beauty exceeds all others of the pie kind, are natives of the Molucca Iſlands, but found in greateſt numbers in that of Aro. The inhabitants are not inſenſible of the pleaſure they afford, and give them the name of God's birds as being ſuperior to all others that he has made. They live in large flocks, and at night generally perch upon the ſame tree. They are called by ſome, the Swallows of Ternate, from their rapid flight, and from their being continually on the wing in purſuit of inſects, their uſual prey.

As the country where they are bred has its tempeſtuous ſeaſon, when rains and thunders continually diſturb the atmoſphere, theſe birds are then but ſeldom ſeen. The natives, who make a trade of killing and ſelling them to the Europeans, generally conceal themſelves in the trees whither they reſort, and having covered themſelves up from ſight in a bower made of the branches, they ſhoot at the birds with reedy arrows. And they aſſert, if they happen to kill the king, they then have a good chance to kill the greateſt part of the flock. The chief mark by which they know the king is by the ends of the feathers in his tail, which have eyes like thoſe of a peacock. When they have taken a number of theſe birds, their uſual method is to gut them and cut off their legs. They then run a hot iron into the body, which dries up the internal moiſture; and filling the cavity with ſalts and ſpices, they ſell them to the Europeans for a perfect triſle.

The Cuckoo.

This ſingular bird, which is ſomewhat leſs than a pigeon, ſhaped like a magpie, and of a greyiſh colour, is diſtinguiſhed from all other birds, by its round prominent noſtrils. Having diſappeared all the winter, it diſcovers itſelf in our country early in the ſpring, by its well known call. Its note is heard earlier or later as the ſeaſon ſeems to be more or leſs forward, and the weather more or leſs inviting. From the cheerful voice of this bird the farmer may be inſtructed in the real advancement of the year. His note is pleaſant though uniform; and, from an aſſociation of ideas, ſeldom occurs to the memory without reminding us of the ſweets of ſummer.

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The female cuckoo makes no neſt of her own. She repairs for that purpoſe to the neſt of ſome other bird, generally the water-wagtail or hedge-ſparrow, and having devoured the eggs of the owner, ſubſtitutes her own in their place. She uſually lays but one, which is ſpeckled, and of the ſize of a blackbird's. This the fond fooliſh bird hatches with great aſſiduity, and, when excluded, finds no difference in the great ill-looking changeling from her own. To ſatisfy the appetite of this voracious creature, the credulous nurſe toils with unuſual care, no way ſenſible that ſhe is rearing an enemy to her race, and one of the moſt deſtructive robbers of her future progeny.

It was once doubted, whether theſe birds were carnivorous; but Reaumur was at the pains of breeding up ſeveral, and found that they would not feed upon bread or corn; for fleſh and inſects were their favourite nouriſhment. Their gluttony is not to be wondered at, when we conſider the capacity of their ſtomach, which is enormous, and reaches from the breaſt-bone to the vent.

The cuckoo when fledged follows its ſuppoſed dam but for a little time. Its appetites for inſect food increaſe, and as it finds no great chance for a ſupply in imitating its little inſtructor, it parts good friends, the ſtep-child ſeldom offering any violence to its nurſe. Nevertheleſs, all the little birds of the grove ſeem to conſider the young cuckoo as an enemy, and revenge the cauſe of their kind by their repeated inſults. They purſue it wherever it flies, and oblige it to take ſhelter in the thickeſt branches of ſome neighbouring tree. All the ſmaller birds form the train of its purſuers; but the wry-neck, in particular, is found the moſt active in the chaſe. Hence it has been called by many the cuckoo's attendant and provider. But it is very far from following with a friendly intention: it only purſues as an inſulter, or a ſpy, to warn all its little companions of the cuckoo's depredations.

Such are the manners of this bird whilſt it continues to reſide, or to be ſeen amongſt us. But early, at the approach of winter, it totally diſappears, and its paſſage can be traced to no other country. Some ſuppoſe that it lies hid in hollow trees; and others that it paſſes into warmer climates. Which of theſe opinions is beſt founded is very uncertain, as there are no facts related on either ſide that can be totally depended on. To ſupport the opinion that they remain torpid during the winter, at home, Willoughby introduces the following ſtory, which he delivers upon the credit of another. "The ſervants of a gentleman, in the country, having ſtocked up, in one of their meadows, ſome old dry rotten willows, thought proper on a certain occaſion, to carry them home. In heating a ſtove, two logs of this timber were put into the furnace beneath, and fire applied as uſual. But ſoon, to the great ſurprize of the family, was heard the voice of a cuckoo, ſinging three times from under the ſtove. Wondering at ſo extraordinary a cry in winter time, the ſervants ran and drew the willow logs from the furnace, and in the midſt, one of them ſaw ſomething move: wherefore, taking an ax, they opened the hole, and thruſting in their hands, firſt they plucked out nothing but feathers; afterwards they got hold of a living animal; and this was the cuckoo that had waked ſo very opportunely for its own ſafety. It was, indeed," continues our hiſtorian, "briſk and lively, but wholly naked and bare of feathers, and without any winter proviſion in its hole. This cuckoo the boys kept for years afterwards alive

in

in the ſtove; but whether it repaid them with a ſecond ſong, the author of the tale has not thought fit to inform us."

The moſt probable opinion on this ſubject is, that as quails and woodcocks ſhift their habitations in winter, ſo alſo does the cuckoo. But to what country it retires, or whether it has been ever ſeen on its journey, are queſtions that I am wholly incapable to anſwer.

Of this bird there are many kinds in various parts of the world, not only differing in their colours but alſo in their ſize. Briſſon makes not leſs than twenty-eight ſorts of them; but what analogy they bear to our Engliſh cuckoo I will not take upon me to determine.

The Parrot.

The Parrot is the beſt known among us of all foreign birds, as it unites the greateſt beauty with the greateſt docility.

The eaſe with which this bird is taught to ſpeak, and the great number of words which it is capable of repeating, are no leſs ſurpriſing. We are aſſured, by a grave writer, that one of theſe was taught to repeat a whole ſonnet from Petrarch; and I myſelf, have ſeen a parrot, belonging to a diſtiller, who had ſuffered pretty largely in his circumſtances from an informer who lived oppoſite him, very ridiculouſly employed. This bird was taught to pronounce the ninth commandment, *Thou ſhalt not bear falſe witneſs againſt thy neighbour*, with a very clear, loud, articulate voice. The bird was generally placed in its cage over againſt the informer's houſe, and delighted the whole neighbourhood with its perſevering exhortations.

Willoughby tells the following ſtory of a parrot. "A parrot belonging to king Henry the Seventh, who then reſided at Weſtminſter, in his palace by the river Thames, had learned many words from the paſſengers as they happened to take water. One day, ſporting on its perch, the poor bird fell into the water, at the ſame time crying out, as loud as he could, *A boat, twenty pound for a boat.* A waterman, who happened to be near, hearing the cry, made to the place where the parrot was floating, and taking him up, reſtored him to the king. As it ſeems the bird was a favourite, the man inſiſted that, as the parrot had cried twenty pounds, the king was bound in honour to grant it. The king at laſt agreed to leave it to the parrot's own determination, which the bird hearing, cried out, *Give the knave a groat.*"

Thoſe who uſually bring theſe birds over are content to make three or four diſtinctions. The large kind, which are of the ſize of a raven, are called Maccaws. The next ſize are ſimply called Parrots. Thoſe which are entirely white are called Lories; and thoſe of the leaſt ſize are called Parakeets. The difference between even theſe is rather in the ſize than in any other peculiar conformation, as they are all formed alike, having toes two before and two behind for climbing and holding. They have alſo ſtrong hooked bills for breaking open nuts, and other hard ſubſtances, on which they feed; loud harſh voices, by which they fill their native woods with clamour.

The bill is faſhioned with peculiarities; for the upper chap, as well as the lower, are both moveable. In moſt other birds the upper chap is connected, and makes but one piece with the ſkull; but in theſe, and in one or two ſpecies of the feathered tribe more, the upper chap is connected to the bone of the head by a ſtrong membrane, placed on each ſide, that lifts and depreſſes it at pleaſure. By this they can open their

their bills the wider; which is not a little uſeful, as the upper chap is ſo hooked and ſo over-hanging, that, if the lower chap only had motion, they could ſcarcely take any food.

The tongue of this bird ſomewhat reſembles that of a man. Hence ſome pretend that it is ſo well qualified to imitate the human voice; but the organs by which theſe ſounds are articulated lie farther down in the throat, being performed by the great motion which the os hyoides has in theſe birds above others.

The parrot, though common enough in Europe, will not, however, breed here. The climate is too cold for its warm conſtitution; and though it endures our winter when arrived at maturity, yet it always ſeems ſenſible of its rigour, and loſes both its ſpirit and appetite during the colder part of the ſeaſon.

This ſagacity, which parrots ſhew in a domeſtic ſtate, ſeems alſo natural to them in their native reſidence, the woods. They live together in flocks, and mutually aſſiſt each other againſt other animals, either by their courage or their notes of warning. They generally breed in hollow trees, where they make a round hole, and do not line their neſt within. If they find any part of a tree beginning to rot from the breaking off of a branch, or any ſuch accident, they take care to ſcoop it, and to make the hole ſufficiently wide and convenient. Notwithſtanding this, it ſometimes happens that they are content with the hole which a wood-pecker has wrought out with greater eaſe before them; and in it they prepare to hatch and bring up their young.

They lay two or three eggs; and probably the ſmaller kind may lay more; for it is a general law of nature, that the ſmalleſt animals are always the moſt prolific.

It is not for the ſake of their converſation alone that the parrot is ſought after among the ſavages; for, though ſome of them are but tough and ill-taſted, yet there are other ſorts, particularly of the ſmall parakeet tribe, that are very delicate food. The ſeed of the cotton-tree intoxicates them as wine intoxicates man. Even wine itſelf is drunk by parrots too, which renders them more talkative and amuſing. But of all food, they are fondeſt of the carthamus, or baſtard ſaffron; which, though ſtrongly purgative to man, agrees perfectly with their conſtitution, and fattens them in a very ſhort time.

The parakeet kind in Braſil are moſt beautiful in their plumage, and are the moſt talkative birds in nature. They are very tame, and appear fond of mankind. And while he continues to talk, they anſwer him, and appear reſolved to have the laſt word. The fowler walks into the woods, where they abound; but as they are green, and exactly the colour of the leaves among which they ſit, he only hears their prattle, without being able to ſee a ſingle bird: he gazes round him, certain that his game is within gun-ſhot in abundance, but is mortified that it is impoſſible to ſee them. Unfortunately for theſe, however, as ſoon as they have ſtriped the tree on which they perched of all its berries, ſome one of them flies off to another; and, if that be found fit for the purpoſe, it calls upon the reſt. The fowler waiting this opportunity, fires in among the flock while they are yet on the wing; and he ſeldom fails of bringing down a part of them. But it is affecting enough to ſee them when they find their companions fall. They ſet up a loud outcry,

outcry, as if they were chiding their deſtroyer, and do not ceaſe till they ſee him almoſt ready for a ſecond charge.

The tame pigeon.

The tame pigeon, and all its beautiful varieties, derive their origin from one ſpecies, to wit, the ſtock dove, a name which implies it being the ſtock or ſtem whence the other domeſtic kinds have been propagated. This bird, in its natural ſtate, is of a deep bluiſh aſh-colour; the breaſt is daſhed with a fine changeable green and purple: its wings are marked with two black bars; and its tail barred near the end with black. Theſe are the colours of the pigeon in a ſtate of nature; and from theſe ſimple tints has man by art propagated a variety that words cannot deſcribe, nor even fancy ſuggeſt. However, nature ſtill perſeveres in her great outline; and though the form, colour, and even the fecundity of theſe birds may be altered by art, yet their natural manners and inclinations continue ſtill the ſame.

The dove-houſe pigeon, as is well known, breeds every month; it lays two white eggs, which almoſt always produce young ones of different ſexes. From three or four o'clock in the evening, till nine next day, the female ſits on the eggs. The male then takes his place from ten till three, while his mate is feeding abroad. In this manner they ſit alternately till the young are excluded. If, during this term, the female delay to return at the expected time, the male follows and drives her to the neſt; and, ſhould he in his turn be dilatory, ſhe retaliates with equal ſeverity.

The young ones when hatched require no food for the three firſt days. They only need to be kept warm, which is an employment the female takes intirely upon herſelf. During this period, ſhe never ſtirs out, except a few minutes to take a little food. From this they are fed for eight or ten days, with corn or grain of different kinds, which the old ones gather in the fields, and treaſure up in their crops, whence they throw it up again into the mouths of their young ones, who very greedily demand it.

So prolific are theſe birds in their domeſtic ſtate, that near fifteen thouſand may in the ſpace of four years be produced from a ſingle pair. Thoſe pigeons which are uſed to convey letters, are eaſily diſtinguiſhed from all others by their eyes, which are compaſſed about with a broad circle of naked white ſkin, and by being of a dark blue or blackiſh colour. It is from their attachment to their native place, and particularly to the ſpot where they have reared their young, that theſe birds are employed in ſeveral countries as the moſt expeditious carriers. They are firſt brought from the place where they were bred, and whither it is intended to ſend them back with information. The letter is tied under the bird's wing, and it is then let looſe to return. The little animal no ſooner finds itſelf at liberty, than its paſſion for its native ſpot directs all its motions. It is ſeen, upon theſe occaſions, to fly to an amazing height; and then, with the greateſt certainty and exactneſs, to direct itſelf by ſome ſurprizing inſtinct towards home, which is ſometimes far off. In the ſpace of an hour and a half they perform a journey of forty miles; which is a degree of diſpatch three times greater than the fleeteſt quadruped can perform.

The varieties of the tame pigeon are ſo numerous, that it would be a vain attempt to mention them. So much is the figure and the colour of

this bird under human controul, that pigeon-fanciers, by coupling a male and female of different ſorts, can breed them, as they expreſs it, to a feather. Hence we have the various names of croppers, carriers, jacobines, powters, runts, and turbits, &c. There are many ſpecies of the wild pigeon differing from the ſtock dove. The ring-dove is of this number; and is a good deal larger than the former. This bird appears to be far fonder of its native freedom than the ſtock-dove, and fruitleſs attempts have often been made to render it domeſtic. Averſe to confinement as ſoon as it can fly it betakes itſelf to its native woods.

The turtle-dove is a ſmaller, but a much ſhyer bird than any of the former. It may eaſily be diſtinguiſhed from the reſt by the iris of the eye, which is of a fine yellow, and by a beautiful crimſon circle that encompaſſes the eye-lids. The fidelity of theſe birds is noted; and a pair being put in a cage, if one dies the other will not ſurvive it. The turtle dove is a bird of paſſage, and few or none remain in our northern climates in winter. They fly in flocks when they come to breed here in ſummer, and delight in open, mountainous, ſandy countries. They build their neſts, however, in the midſt of woods.

CHAP. XXVI.

OF BIRDS OF THE SPARROW KIND.—OF THE THRUSH AND ITS AFFINITIES.—THE BLACK BIRD.—THE FIELD-FARE, RED-WING AND STARLING.—THE MOCK-BIRD.—OF THE NIGHTINGALE, AND OTHER SOFT-BILLED SINGING BIRDS.—THE RED-BREAST.—THE LARK.—THE BLACK CAP AND WREN.—OF CANARY BIRDS, AND OTHER HARD-BILLED SINGING BIRDS.—THE LINNET, GOLDFINCH, &c.—OF THE SWALLOW, THE MARTIN, THE GOAT-SUCKER.—THE HUMMING-BIRD.

WITH the THRUSH we may rank the red-wing, the field-fare, the black-bird, the ring-ouzel, and the water-ouzel.

The Miſſel-thruſh.

The Miſſel-thruſh is diſtinguiſhed from all of the kind by being much larger than any of them. It differs ſcarcely in any other reſpect from the throſtle, except that the ſpots on the breaſt are larger. It builds its neſt in buſhes, or on the ſide of ſome tree, as all of this kind are found to do, and lays four or five eggs in a ſeaſon. Its ſong is very fine, which it begins in ſpring, ſitting on the ſummit of a high tree. It is the largeſt bird of all the feathered tribe that has muſic in its voice; the note of all greater birds being either ſcreaming, chattering, or croaking. It feeds on inſects, holly and miſletoe-berries; and ſometimes emits a very diſagreeable ſcream when frighted or diſturbed.

The Black-bird.

The Black-bird, which in old countries, and particularly upon the Alps, is ſometimes ſeen white, is, when heard at a diſtance, the moſt pleaſing ſongſter of the grove. It is the deepeſt toned warbler of the woods; but it is rather unpleaſant in a cage, being loud and deafening. It lays four or five blueiſh eggs, in a neſt uſually built at the ſtump of ſome old hawthorn, well plaiſtered on the inſide with clay, ſtraw, and hair.

Pleaſing,

Pleaſing, however, as this bird may be, the blue-bird, deſcribed by Bellonius, is in every reſpect far ſuperior. This beautiful creature entirely reſembles a black bird in all but its blue colour. It inhabits the higheſt parts of the Alps, and even there preſers the moſt craggy rocks and the moſt frightful precipices for it reſidence. As it is rarely caught, it is in high eſtimation even in the countries where it breeds, but it is ſtill more valuable when carried from home. It not only whiſtles in the moſt delightful manner, but ſpeaks with an articulate diſtinct voice. It is ſo docile, that, though waked at midnight by any of the family, it will ſpeak and whiſtle at the word of command. Its colour, about the beginning of winter, from blue becomes black, which changes to its original hue on the approach of ſpring.

The Field-fare and the Red-wing.

The Field-fare and the Red-wing make but a ſhort ſtay in this country. With us they are inſipid, tuneleſs birds, flying in flocks, and exceſſively watchful to preſerve the general ſafety. All their ſeaſon of muſic and pleaſure is employed in the more northern climates, where they ſing moſt delightfully, perched among the foreſts of mapples, with which thoſe countries abound. They build their neſts in hedges; and lay ſix blueiſh green eggs ſpotted with black.

The Stare or Starling.

The Stare or Starling, diſtinguiſhable from the reſt of this tribe by the gloſſy green of its feathers, in ſome lights, and the purple in others, breeds in hollow trees, caves of houſes, towers, ruins, cliffs, and often in high rocks over the ſea. It lays four or five eggs of a pale greeniſh aſh-colour, and makes its neſt of ſtraw, ſmall fibres of roots, &c. Its voice is rougher than the reſt of this kind; but what it wants in the melody of its note, it compenſates by the facility with which it is taught to ſpeak. In winter theſe birds aſſemble in vaſt flocks, and feed upon worms and inſects. At the approach of ſpring, they aſſemble in fields, as if to conſult about ſome matter of importance, and for three or four days ſeem to take no food. The greater part leave the country; the reſt breed here, and rear their young.

To this tribe might be added above an hundred other birds of nearly the thruſh ſize, and living like them upon fruits and berries. Words could not afford variety enough to deſcribe all the beautiful tints that adorn the foreign birds of the thruſh kind. The brilliant green of the emerald, the flaming red of the ruby, the purple of the amethyſt, or the bright blue of the ſapphire, could not by the moſt artful combination exhibit any thing ſo truly lively or delightful to the ſight as the feathers of the chilcoqui or the tautool. Without dwelling, therefore, upon theſe beautiful, but little known, birds, I will only mention the American Mock-bird. It is but a plain bird to the eye, about the ſize of a thruſh, of a white and grey colour, and a reddiſh bill. It is poſſeſſed not only of its own natural notes, which are muſical and ſolemn, but it can aſſume the tone of every other animal in the wood, from the wolf to the raven. It ſeems even to amuſe itſelf in leading them aſtray. It will at one time allure the leſſer birds with the call of their males, and then terrify them when they have come near with the ſcreams of the eagle. The mock-bird, however, pleaſes moſt when it is alone. At thoſe times it uſually frequents the houſes of the American planters; and, ſitting all night on the chimney-top, pours forth

the ſweeteſt and the moſt various notes of any bird whatever. It would ſeem, if accounts be true, that the deficiency of moſt other ſong-birds in that country is made up by this bird alone. They often build their neſts in the fruit-trees about houſes, and are eaſily rendered domeſtic.

The Nightingale.

The Nightingale is not only famous among the moderns for its ſinging, but almoſt every one of the ancients who undertook to deſcribe nature embelliſhed, has contributed to raiſe its reputation.

This moſt famous of the feathered tribe viſits England in the beginning of April, and leaves us in Auguſt. It is found but in ſome of the ſouthern parts of that country, being totally unknown in Scotland, Ireland, or North Wales. They frequent thick hedges and low coppices, and generally keep in the middle of the buſh, ſo that they are rarely ſeen. They begin their ſong in the evening, and generally continue it the whole night. For weeks together, if undiſturbed, they ſit upon the ſame tree; and the inimitable Shakeſpear rightly deſcribes the nightingale ſitting nightly in the ſame place.

In the beginning of May, the nightingale prepares to make its neſt, which is formed of the leaves of trees, ſtraw, and moſs. The neſt being very eagerly ſought for, is as cunningly ſecreted; ſo that but very few of them are found by the boys when they go upon theſe purſuits. It is built at the bottom of hedges, where the buſhes are thickeſt and beſt covered. Whilſt the female continues ſitting, the male at a good diſtance, but always within hearing, chears the patient hour with his voice, and, by the ſhort interruption of his ſong, often gives her warning of approaching danger. She lays four or five eggs; of which but a part, in our cold climate, attain to maturity.

The delicacy, or rather the fame, of this bird's muſic, has induced many to abridge its liberty to ſecure its harmony. Its ſong, however, in captivity is not very alluring; and the tyranny of taking it from thoſe hedges where only it is moſt pleaſing, ſtill more depreciates its impriſoned efforts. Geſner aſſures us, that it is not only the moſt agreeable ſongſter in a cage, but that it poſſeſſes a moſt admirable faculty of talking. He tells the following ſtory in proof of his aſſertion, which he ſays was communicated to him by a friend. "Whilſt I was at Ratiſbone," ſays his correſpondent, "I put up at an inn, the ſign of the Golden Crown, where my hoſt had three nightingales. It happened at that time, being the ſpring of the year, when thoſe birds are accuſtomed to ſing, that I was ſo afflicted with the ſtone, that I could ſleep but very little all night. It was uſual then about midnight, to hear the two nightingales jangling, and talking with each other, and plainly imitating men's diſcourſes. Beſides repeating the daily diſcourſe of the gueſts, they chanted out two ſtories. One of their ſtories was concerning the tapſter and his wife, who refuſed to follow him to the wars; for the huſband endeavoured to perſuade his wife, as far as I could learn from the birds, that he would leave his ſervice in that inn, and go to the wars in hopes of plunder. But ſhe refuſed to follow him, reſolving to ſtay either at Ratiſbone, or go to Nuremberg. There was a long and earneſt contention between them; and all this dialogue the birds repeated. They even repeated the unſeemly words which were caſt out between them, and which ought rather to have been ſuppreſſed. The other ſtory was concerning the war which the emperor was then threatening

threatening againſt the proteſtants; which the birds probably heard from ſome of the generals that had conferences in the houſe. Theſe things they repeated in the night after twelve o'clock, when there was a deep ſilence. But in the day time, for the moſt part, they were ſilent, and ſeemed to do nothing but revolve with themſelves upon what the gueſts conferred together as they ſat at table, or in their walks."

Such is the ſagacity aſcribed to the nightingale. But there is a little bird, rather celebrated for its affection to mankind than its ſinging, which however, in our climate, has the ſweeteſt note of all others. The reader already perceives that I mean the RED-BREAST, the well-known friend of man, which is found in every hedge, and makes it vocal. The note of other birds is louder, and their inflections more capricious; but this bird's voice is ſoft, tender, and well ſupported; and the more to be valued as we enjoy it the greateſt part of the winter. If the nightingale's ſong has been compared to the fiddle, the red-breaſt's voice has all the delicacy of the flute.

The Lark.

The Lark, whether the ſky-lark, the wood, or the tit-lark, being all diſtinguiſhable from other little birds by the length of their heel, are louder in their ſong than either of the former, but not ſo pleaſing. Indeed, the muſic of every bird in captivity produces no very pleaſing ſenſations. It is but the mirth of a little animal inſenſible of its unfortunate ſituation. It is the landſcape, the grove, the golden break of day, the conteſt upon the hawthorn, the fluttering from branch to branch, the ſoaring in the air, and the anſwering of its young, that gives the bird's ſong its true reliſh. Theſe united, improve each other, and raiſe the mind to a ſtate of the higheſt, yet moſt harmleſs exultation.

The lark builds its neſt upon the ground, beneath ſome turf that ſerves to hide and ſhelter it. The female lays four or five eggs, of a duſky hue in colour, ſomewhat like thoſe of a plover. It is while ſhe ſits that the male uſually entertains her with his ſinging; and while he is riſen to an imperceptible height, yet he ſtill has his loved partner in his eye, nor once loſes ſight of the neſt either while he aſcends or deſcends. This harmony continues ſeveral months, beginning early in the ſpring on pairing. In winter, they aſſemble in flocks, when their ſong forſakes them, and they are caught in great numbers for the luxury of the table.

The Black-cap and the Wren.

The Black-cap and the Wren, though ſo very diminutive, are yet prized by ſome for their ſinging. The former is called by ſome the mock nightingale; and the latter is admired for the loudneſs of its note, compared to the little body whence it iſſues.

The Canary-Bird.

The Canary-bird is now become ſo common, and has continued ſo long in a domeſtic ſtate, that its native habits, as well as its native country, ſeem almoſt forgotten. Though, by the name, it appears that theſe birds came originally from the Canary Iſlands, yet we have them only from Germany, where they are bred up in great numbers, and ſold into different parts of Europe.

In its native iſlands, a region no leſs diſtinguiſhed for the beauty of its landſcapes than the harmony of its groves, the canary-bird is of a duſky grey colour, and ſo different from thoſe uſually ſeen in Europe, that

that ſome have even doubted whether it be of the ſame ſpecies. With us, they have that variety of colouring uſual in all domeſtic fowls. Some are white, ſome mottled, and ſome are beautifully ſhaded with green; but they are more eſteemed for their note than their beauty. For they have a high piercing pipe, as indeed all thoſe of the finch tribe have, continuing for ſome time in one breath without intermiſſion, then raiſing it higher and higher by degrees, with great variety.

The Linnet and the Goldfinch.

The linnet and the goldfinch are ſo very like the canary-bird, that they have ſcarcely any peculiarities that can attract our curioſity. The gold-finch learns a fine ſong from the nightingale; and the linnet and bull-finch may be taught to forget the wild notes of nature, and to whiſtle a long and regular tune.

Of the Swallow and its Affinities.

In this tribe is to be found the Goat-ſucker, which may be ſtyled a nocturnal ſwallow. It is the largeſt of this kind, and is known by its tail, which is not forked, like that of the common ſwallow. It begins its flight at evening, and makes a loud ſingular noiſe, like the whur of a ſpinning-wheel. To this kind alſo belongs the Houſe-ſwallow, which is too well known to need a deſcription: the Martin is inferior in ſize to the former, and the tail is much leſs forked. It differs alſo in its neſt, which is covered at top, while that of the houſe-ſwallow is open; and the Swift, rather larger than the houſe-ſwallow, with all the toes ſtanding forward; in which it differs from the reſt of its kind. All theſe reſemble each other ſo ſtrongly, that it is not without difficulty the ſmaller kinds are known aſunder.

Theſe are all known by their very large mouths, which, when they fly are always kept open. They are not leſs remarkable for their ſhort ſlender feet, which ſcarcely are able to ſupport the weight of their bodies. Their wings are of immoderate extent for their bulk. Their plumage is gloſſed with a rich purple; and their note is a ſlight twittering, which they ſeldom exert but upon the wing.

This peculiar conformation ſeems attended with a ſimilar peculiarity of manners. Their food is inſects, which they always purſue flying. For this reaſon, during fine weather, when the inſects are moſt likely to be abroad, the ſwallows are for ever upon the wing, and ſeen purſuing their prey with amazing ſwiftneſs. All ſmaller animals, in ſome meaſure, find ſafety by winding and turning, when they endeavour to avoid the greater. The lark thus evades the purſuit of the hawk; and man the crocodile. In this manner, inſects upon the wing endeavour to avoid the ſwallow; but this bird is admirably fitted by nature to purſue them through their ſhorteſt turnings. Beſides a great length of wing, it is alſo provided with a long tail, which, like a rudder, turns it in its moſt rapid motions; and thus, whilſt it is poſſeſſed of the greateſt ſwiftneſs, it is alſo poſſeſſed of the moſt extreme agility.

The neſt of theſe birds is built with great induſtry and art; particularly by the common ſwallow, which builds it on the tops of chimnies. The martin ſticks it to the caves of houſes. The goat ſucker, as we are told, builds it on the bare ground. This neſt is built with mud from ſome neighbouring brook, well tempered with the bill, moiſtened with water for the better adheſion, and ſtill farther kept firm, by long graſs and fibres. Within it is lined with gooſe feathers, which are e-

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ver the warmeſt and the neateſt. The martin covers its neſt at top, and has a door to enter at. The ſwallow on the other hand, leaves her's quite open. But our European neſts are nothing to be compared with thoſe the ſwallow builds on the coaſts of China and Coromandel; the deſcription of which I will give, in the plain honeſt phraſe of Willoughby. "On the ſea coaſt of the kingdom of China," ſays he, "a ſort of party-coloured birds, of the ſhape of ſwallows, gather a certain clammy, gluttinous matter, perhaps the ſpawn of whales and other young fiſhes, of which they build their neſts, wherein they lay their eggs and hatch their young. Theſe neſts the Chineſe pluck from the rocks, and bring them in great numbers, into the Eaſt-Indies to ſell. They are eſteemed, by gluttons, as great delicacies; who, diſſolving them in chicken, or mutton-broth, are very fond of them; far before oyſters, muſh-rooms, or other dainty and lickoriſh morſels."

At the latter end of September the ſwallows leave us; and a few days before their departure, they aſſemble, in vaſt flocks, on houſe-tops, as if to deliberate on the fatiguing journey that lay before them. This is no ſlight undertaking, as their flight is directed to Congo, Senegal, and along the whole Morocco ſhore. There are ſome, however, left behind in this general expedition, that do not part till eight or ten days after the reſt. Theſe are chiefly the latter weakly broods, which are not yet in a condition to ſet out.

Thoſe that migrate are firſt obſerved to arrive in Africa about the beginning of October. They are thought to have perſormed their fatiguing journey in the ſpace of ſeven days. They are ſometimes ſeen, when interrupted by contrary winds, wavering in their courſe far off at ſea, and lighting upon whatever ſhip they find in their paſſage. They then ſeem exhauſted with famine and fatigue, yet ſtill they boldly venture, when refreſhed by a few hours reſt, to renew their flight and to continue the courſe which they had been ſteering before.

Of the Humming-Bird and its Varieties.

Of this charming little animal, there are ſix or ſeven varieties, from the ſize of a ſmall wren, down to that of an humble-bee. An European could never have ſuppoſed a bird exiſting ſo very ſmall, and yet completely furniſhed out with a bill, feathers, and inteſtines, exactly reſembling thoſe of the largeſt kind. A bird not ſo big as the end of one's little finger, would probably be ſuppoſed but a creature of imagination, were it not ſeen in infinite numbers, and as frequent as butterflies in a ſummer day, ſporting in the fields of America, from flower to flower, and extracting their ſweets with its little bill.

The ſmalleſt humming bird is about the ſize of an hazel-nut. The feathers on its wings and tail are black; but thoſe on its body, and under its wings, are of a greeniſh brown, with a fine red caſt or gloſs, which no ſilk or velvet can vie with. It has a ſmall creſt on its head, green at the bottom, and as it were gilded at the top; and which ſparkles in the ſun like a little ſtar in the middle of its forehead. The bill is black, ſtraight, ſlender, and of the length of a ſmall pin. The larger humming-bird is near half as big as the common wren, and without a creſt on its head; but, to compenſate for this, it is covered, from the throat half way down the belly, with changeable crimſon-coloured feathers, which in different lights, change to a variety of beautiful

tiful colours, much like an opal. The heads of both are ſmall, with very little round eyes as black as jet.

It is inconceivable how much theſe add to the high finiſhing and beauty of a rich luxurious weſtern landſcape. As ſoon as the ſun is riſen, the humming-birds, of different kinds, are ſeen fluttering about lighting upon them. Their wings are in ſuch rapid motion, that it is impoſſible to diſcern their colours, except by their glittering. They are never ſtill, but continually in motion, viſiting flower after flower, and extracting its honey. For this purpoſe they are furniſhed with a forked tongue, that enters the cup of the flower, and extracts its nectared tribute. Upon this alone they ſubſiſt. The rapid motion of their wings brings out an humming ſound, whence they have their name.

The neſts of theſe birds are not leſs curious than thoſe of the reſt. They are ſuſpended in the air, at the point of the twigs of an orange, a pomegranate, or a citron tree; ſometimes even in houſes, if they find a ſmall and convenient twig for the purpoſe. The female is the architect, while the male goes in queſt of materials; ſuch as cotton, fine moſs, and the fibres of vegetables. The neſt is about the ſize of a hen's egg cut in two. They lay two eggs at a time, and never more, about the ſize of ſmall peas, and as white as ſnow, with here and there a yellow ſpeck. The time of incubation continues twelve days; at the end of which the young ones appear, and are much about the ſize of a blue-bottle-fly.

It is doubtful whether or not theſe birds have a continued note in ſinging. All travellers agree that, beſide the humming noiſe produced by their wings, they have a little interrupted chirrup; but Labat aſſerts, that they have a moſt pleaſing plaintive melody in their voices, though ſmall and proportioned to the organs which produce it. It is very probable that, in different places, their notes are alſo different; and as there are ſome that continue torpid all the winter, there may likewiſe be ſome with agreeable voices.

CHAP. XXVII.

OF THE CRANE SPECIES.—THE CRANE.—THE STORK.—THE BALEARIC CRANE, AND OTHER FOREIGN CRANES.—THE BUFFOON BIRD.—THE HERON.—THE BITTERN.—THE SPOON-BILL.—THE FLAMINGO.—THE SCOOPER—THE RUNNER—THE CURLEW—THE GODWIT—THE WOODCOCK.—THE SNIPE.—THE RUFF.—THE LAPWING AND PLOVER.—THE DOTTREL.—THE SEA-LARK.—THE WATER-HEN.—THE COOT, &c.

The Crane.

WILLOUGHBY and Pennant make the crane from five to ſix feet long, from the tip to the tail. Others ſay, that it is above five feet high; and others that it is as tall as a man. A bird, however, the body of which is not larger than that of a turkey-hen, and acknowledged on all hands not to weigh above ten pounds, cannot be ſuppoſed to be almoſt as long as an oſtrich. Briſſon, therefore, ſeems to give this

this bird its real dimenſions, when he deſcribes it about three feet high, and about four from the tip to the tail. But, perhaps, that from which he took his dimenſions, was one of the ſmalleſt of the kind.

It is a tall, ſlender bird, with a long neck and long legs. The top of the head is covered with black briſtles, and the back of it is bald and red, which ſufficiently diſtinguiſhes it from the ſtork, to which it is very nearly allied in ſize and figure. The plumage, in general, is aſh-coloured; and there are two large tufts of feathers, that ſpring from the pinion of each wing. Theſe bear a reſemblance to hair, and are finely coloured at the ends, which the bird has a power of erecting and depreſſing at pleaſure. Geſner ſays, that theſe feathers, in his time, uſed to be ſet in gold, and worn as ornaments in caps.

The crane is a very ſocial bird, and they are ſeldom ſeen alone. They generally fly or ſit in flocks of fifty or ſixty together; and while a part feed, the reſt ſtand like centinels upon duty. It for the moſt part ſubſiſts upon vegetables; and is known in every country of Europe, except our own. As they are birds of paſſage, they are ſeen to depart and return regularly at thoſe ſeaſons when their proviſion invites or repels them. They for the moſt part leave Europe about the latter end of autumn, and return in the beginning of ſummer. In the inland parts of the continent, they are ſeen croſſing the country, in flocks of fifty or an hundred, from the northern regions towards the ſouth. In theſe migrations, however, if a field of corn offers in their way, they will ſtop a while to regale upon it. On ſuch occaſions they do incredible damage, chiefly in the night; and the huſbandman, who lies down in joyful expectation, riſes in the morning to ſee his fields laid entirely waſte, by an enemy, whoſe march is too ſwift for his vengeance to overtake.

The cold arctic region ſeems to be this bird's favourite abode. They come down into the more ſouthern parts of Europe rather as viſitants than inhabitants.

In their journeys it is amazing to conceive the heights to which they aſcend, when they fly. Their note is the loudeſt of all birds; and is often heard in the clouds, when the bird itſelf diſappears entirely. As it is light for its ſize, and ſpreads a large expanſe of wing, it is capable of floating at the greateſt height, where the air is lighteſt; and as it ſecures its ſafety, and is quite out of the reach of man, it flies in tracts which would be too fatiguing for any other bird to purſue.

In theſe aerial journeys, though unſeen themſelves, they have the diſtincteſt viſion of every object below. They govern and direct their flight by their cries: and exhort each other to proceed or deſcend, when a fit opportunity offers for depredation. As they riſe but heavily, they are very ſhy birds, and ſeldom let the fowler approach them. Corn is their favourite food; but there is ſcarcely any other that comes amiſs to them. Redi, who opened ſeveral, found the ſtomach of one full of the herb called dandelion; that of another was filled with beans; a third had a great quantity of clover in its ſtomach; while thoſe of two others filled with earth-worms and beetles. In ſome he found lizards and ſea-fiſh; in others, ſnails, graſs, and pebbles, ſwallowed perhaps for medicinal purpoſes.

In general it is a peaceful bird, both in its own ſociety, and with reſpect to thoſe of the foreſt. It is eaſily tamed; and if we can believe Albertus Magnus, it has a particular affection for man.

Storks.

Storks are birds of paſſage, like the former; but it is hard to ſay whence they come or whither they go. When they withdraw from Europe, they all aſſemble on a particular day, and never leave one of their company behind them. They take their flight in the night: hence the way they go has never been obſerved. They generally return into Europe in the middle of March, and make their neſts on the tops of chimnies and houſes as well as on high trees. The females lay from two to four eggs, of the ſize and colour of thoſe of geeſe. They are a month in hatching; and when their young are excluded, they are particularly ſolicitous for their ſafety.

As the food of theſe birds conſiſts in a great meaſure of frogs and ſerpents, it is not to be wondered at that different nations have paid them a particular veneration. The Dutch are very ſolicitous for the preſervation of the ſtork in every part of their republic. It ſeems to have taken refuge among their towns; and builds on the tops of their houſes without any moleſtation. It reſts familiarly in their ſtreets, and is protected as well by the laws as the prejudices of the people.

The Baleario Crane.

The baleario crane was unknown, till we became acquainted with the birds of tropical climates, when one of the crane kind with a topping was brought into Europe, and deſcribed by Aldrovandus as Pliny's baleario crane. It is nearly of the ſhape and ſize of the ordinary crane, with long legs and a long neck, like others of the kind; but the bill is ſhorter, and the colour of the feathers is of a dark greeniſh grey. The head and throat form the moſt ſtriking part of this bird's figure. On its head is a thick round creſt, made of briſtles, which ſpreads every way, and which reſembles rays ſtanding out in every different direction. The longeſt of theſe rays are about three inches and an half; and they are all topped with a kind of black taſſels, which give them a beautiful appearance. The ſides of the head and cheeks are bare, whitiſh, and edged with red, while underneath the throat hangs a kind of bag or wattle, like that of a cock, but not divided into two. This bird comes from the coaſt of Africa and the Cape de Verd Iſlands. When it runs, it ſtretches out its wings, and goes very ſwiftly, at other times its uſual motion is very ſlow. In their domeſtic ſtate, they walk very deliberately among other poultry, and ſuffer themſelves to be approached by every ſpectator. They never rooſt in houſes. But about night, when they are diſpoſed to reſt, they ſearch out ſome high wall, on which they perch in the manner of a peacock. Indeed, they ſo much reſemble that bird in manners and diſpoſition, that ſome have deſcribed them by the name of the ſea-peacock. But, though their voice and rooſting be ſimilar, their food, which is entirely upon greens, vegetables, and barley, ſeems to be ſomewhat different.

Under this head of foreign birds of the crane kind, it will be proper to mention the Jabiru and the Jabiru Guacu, both natives of Braſil. Of theſe great birds of the crane-kind we know but little, except the general out-line of their figure, and the enormous bills which we often ſee preſerved in the cabinets of the curious. The bill of the latter is red,

red, and thirteen inches long: the bill of the former is black, and is eleven. Neither of them, however, are of a ſize proportioned to their immoderate length of bill. The jabiru guacu is not above the ſize of a common ſtork, while the jabiru with the ſmalleſt bill exceeds the ſize of a ſwan. They are both covered with white feathers, except the head and neck, that are naked; and their principal difference is in the ſize of the body and make of the bill. The lower chap of the jabiru guacu being broad, and bending upwards.

A bird ſtill more extraordinary may be added to this claſs, called the Anhima, which, like the two former, is a native of Braſil. This is a water-fowl of the rapacious kind, and bigger than a ſwan. The head, which is ſmall for the ſize of the body, has a black bill not above two inches long; but what diſtinguiſhes it in particular is a horn growing from the forehead as long as the bill, and bending forward like that of the fabulous unicorn of the ancients. This horn, which is as round as if it were turned in a lathe, and of an ivory colour, is not much thicker than a crow quill. But this is not the only inſtrument of battle this formidable bird carries. It ſeems to be armed at all points; for at the fore part of each wing, at the ſecond joint, ſpring two ſtraight triangular ſpurs, about as thick as one's little finger. The foremoſt of theſe goads or ſpurs is above an inch long: the hinder is ſhorter, and both are of a duſky colour. Their claws alſo are long and ſharp: their colour is black and white; and they cry very loud. They are never found alone, but always in pairs. The cock and hen prowl together; and their fidelity is ſaid to be ſuch, that when one dies, the other never departs from the carcaſe, but dies with its companion. It makes its neſt of clay, near the bodies of trees, upon the ground, of the ſhape of an oven.

One bird more may be ſubjoined to this claſs, not for the oddity of its figure, but for the peculiarity of its manners. It is vulgarly called by our ſailors, the Buffon bird, and by the French the damoiſelle, or lady. The peculiar geſtures and contortions of this bird, the proper name of which is the Numidian Crane, are extremely ſingular. It ſtoops, riſes, lifts one wing, then another, turns round, ſails forwards, then back again. All this highly diverts our ſeamen; who perhaps do not imagine, that all theſe contortions are but the awkward expreſſion not of the poor creature's pleaſures, but of its fears.

It is a very ſcarce bird: the plumage is of a leaden grey; but it is diſtinguiſhed by fine white feathers, conſiſting of long fibres, which fall from the back of the head, about four inches long. The fore-part of the neck however is adorned with black feathers, compoſed of very fine, ſoft, and long fibres, that hang down upon the ſtomach, and give the bird a very graceful appearance.

Of the Heron and its Varieties.

Of this tribe, Briſſon has enumerated not leſs than forty-ſeven ſorts, all differing in their ſize, figure, and plumage; and with talents adapted to their place of reſidence, or their peculiar purſuits. But, how various ſoever the heron kind may be in their colours or their bills, they all ſeem to poſſeſs the ſame manners, and have but one character of cowardice and rapacity, indolence, yet inſatiable hunger. Other birds are found to grow fat by an abundant ſupply of food; but theſe, though

exceſſively voracious, have always lean and carrion bodies, as if not even plenty were ſufficient for their ſupport.

The common heron is remarkably light, in proportion to its bulk, ſcarce weighing three pounds and an half, yet it expands a breadth of wing which is five feet from the tip of the one to that of the other. Its bill is very long, being five inches from the point to the baſe: its claws are long, ſharp, and the middlemoſt toothed like a ſaw. Yet, thus armed as it appears for war, it is indolent and cowardly, and even flies at the approach of a ſparrow-hawk. Of all birds, this commits the greateſt devaſtation in freſh-waters; and there is ſcarcely a fiſh, though ever ſo large, that he will not ſtrike at though unable to carry it away. But the ſmall fry are his chief food. Theſe, purſued by their larger fellows of the deep, are obliged to take refuge in ſhallow waters, where they find the heron a ſtill more formidable enemy. His method is to wade as far as he can go into the water, and there patiently to wait the approach of his prey, which when it comes within ſight, he darts upon it with an inevitable aim. In this manner he is found to deſtroy more in a week than an otter in three months. "I have ſeen an heron," ſays Willoughby, "that had been ſhot, that had ſeventeen carps in his belly at once, which he will digeſt in ſix or ſeven hours. I have ſeen a carp," continues he, "taken out of a heron's belly, nine inches and an half long. Several gentlemen who kept tame herons, to try what quantity one of them would eat in a day, have put ſeveral ſmaller roach and dace in a tub; and they have found him eat fifty in a day, one day with another. In this manner a ſingle heron will deſtroy fifteen thouſand carp in half a year."

But, though in ſeaſons of fine weather the heron can always find a plentiful ſupply; in cold or ſtormy ſeaſons, his prey is no longer within reach. The fiſh that before came into the ſhallow water now keep in the deep, as they find it to be the warmeſt ſituation. Frogs and lizards alſo ſeldom venture from their lurking places; and the heron is obliged to ſupport himſelf upon his long habits of patience, and even to take up with the weeds that grow upon the water. At thoſe times he contracts a conſumptive diſpoſition, which ſucceeding plenty is not able to remove; ſo that the meagre glutton ſpends his time between want and riot, and feels alternately the extremes of famine and exceſs. Hence, notwithſtanding the care with which he takes his prey, and the amazing quantity he devours, the heron is always lean and emaciated; and though his crop be uſually found full, yet his fleſh can hardly cover the bones.

Though this bird lives chiefly among pools and marſhes, yet its neſt is built on the tops of the higheſt trees, and ſometimes on cliffs hanging over the ſea. They are never in flocks when they fiſh, but commit their depredations in ſolitude and ſilence. In making their neſts however they love each others ſociety; and they are ſeen, like rooks, building in company with flocks of their kind. Their neſts are made of ſticks and lined with wool; and the female lays four large eggs of a pale green colour. The obſervable indolence of their nature, however, is not leſs ſeen in their neſtling than in their habits of depredation. Nothing is more certain, and I have ſeen it an hundred times, than that they will not be at the trouble of building a neſt when they can get

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one made by the rook, or deſerted by the owl. This they uſually enlarge and line within, driving off the original poſſeſſors ſhould they happen to renew their claims.

The heron is ſaid to be a very long-lived bird: by Mr Keyſler's account it may exceed ſixty years. One too was taken in Holland, by an hawk belonging to the ſtadtholder, having a ſilver plate faſtened to one leg, with an inſcription, ſignifiying that it had been ſtruck by the elector of Cologne's hawks thirty-five years before.

Of the Bittern or Mire-Drum.

Thoſe who have walked in an evening by the ſedgy ſides of unfrequented rivers, muſt remember the loud ſcream of the wild gooſe, the croaking of the mallard, the whining of the lapwing, and the tremulous neighing of the jack ſnipe. But of all thoſe ſounds, there is none ſo diſmally hollow as the booming of the bittern. It is impoſſible for words to give thoſe who have not heard this evening-call an adequate idea of its ſolemnity. It is like the interrupted bellowing of a bull, but hollower and louder, and is heard at a mile's diſtance, as if iſſuing from ſome formidable being that reſided at the bottom of the waters.

The bird, however, that emits this terrifying ſound is not ſo big as an heron, with a weaker bill, and not above four inches long. It differs from the heron chiefly in its colour, which is in general of a paleiſh yellow, ſpotted and barred with black. Its wind-pipe is fitted to produce the ſound for which it is remarkable; the lower part of it dividing into the lungs is ſupplied with a thin looſe membrane, that can be filled with a large body of air, and exploded at pleaſure. Theſe bellowing exploſions are chiefly heard from the beginning of ſpring to the end of autumn; and, however awful they may ſeem to us, are the calls to courtſhip, or connubial enjoyment.

This bird, though of the heron kind, is yet neither ſo deſtructive nor ſo voracious. It is a timid animal, concealing itſelf in the midſt of reeds and marſhy places, and living upon frogs, inſects, and vegetables; and though it is not unlike the heron in figure, yet it is of very different manners and appetites. It makes its neſt in a ſedgy margin, or amidſt a tuft of ruſhes, and compoſes its ſimple habitation of ſedges, the leaves of water plants, and dry ruſhes. It lays generally ſeven or eight eggs of an aſh-green colour, and in three days leads its little ones to their food.

The fleſh of the bittern is in great eſteem among the luxurious. For this reaſon, it is eagerly ſought after by the fowler; and as it is a ſlow-winged bird, it does not often eſcape him. Indeed, it ſeldom riſes but when almoſt trod upon; and ſeems to ſeek protection rather from concealment than flight. At the latter end of autumn, however, in the evening, its wonted indolence appears to forſake it. It is then ſeen to riſe in a ſpiral aſcent till it is quite loſt from the view, and makes at the ſame time a ſingular noiſe very different from its former boomings.

The Spoonbill.

The Spoonbill is one of thoſe birds which differs a good deal from the crane, yet approaches this claſs more than any other. The body is more bulky for its height, and the bill is very differently formed from that of any other bird whatever. Yet ſtill is a comparatively tall bird: it feeds among waters: its toes are divided; and it ſeems to poſſeſs the natural diſpoſitions of the crane. The European ſpoonbill is of about

about the bulk of a crane; but as the one is above four feet high, the other is not more than three feet three inches. The common colour of thoſe of Europe, is a dirty white; but thoſe of America are of a beautiful roſe colour, or of a delightful crimſon. Beauty of plumage ſeems indeed, to be the prerogative of all the birds of that continent. The bill, which in this bird is ſo very particular, is about ſeven inches long, and running out broad at the end, as its name denotes, it is there about an inch and a half wide. This ſtrangely faſhioned inſtrument, in ſome is black: in others it is of a light grey; and in thoſe of America, it is of a red colour, like the reſt of the body. All round the upper chap there runs a kind of rim, with which it covers that beneath. Its cheeks and its throat are without feathers, and covered with a black ſkin.

The Shoveler.

The Shoveler chiefly feeds upon frogs, toads, and ſerpents; of which, particularly at the Cape of Good Hope, they deſtroy great numbers. The inhabitants of that country hold them in as much eſteem as the ancient Egyptians did the ibis. The ſhoveler runs tamely about their houſes; and they are content with its ſociety, as an uſeful though an homely companion. They are never killed; and indeed they are good for nothing when they are dead.

This bird breeds in Europe, in company with the heron, in high trees; and in a neſt formed of the ſame materials.

It lays from three to five eggs; white, and powdered with a few ſanguine or pale ſpots.

The Flamingo.

The Flamingo is the moſt remarkable of all the crane kind, the talleſt, largeſt, and the moſt beautiful. The body, which is of a beautiful ſcarlet, is no bigger than that of a ſwan; but its legs and neck are of ſuch an extraordinary length, that when it ſtands erect, it is ſix feet ſix inches high. Its wings, extended, are five feet ſix inches from tip to tip; and it is four feet eight inches from tip to tail. The head is round and ſmall, with a large bill, ſeven inches long, partly red, partly black, and crooked like a bow. The legs and thighs, which are not much thicker than a man's finger, are about two feet eight inches high; and its neck near three feet long. The feet are not furniſhed with ſharp claws, as in others of the crane kind; but feeble, and united by membranes, as in thoſe of the gooſe. Of what uſe theſe membranes are, does not appear, as the bird is never ſeen to ſwim, its legs and thighs being ſufficient for bearing it into thoſe depths where it ſeeks for prey.

This extraordinary bird is now chiefly found in America, but was once known on all the coaſts of Europe. Its beauty, its ſize, and the peculiar delicacy of its fleſh, have been ſuch temptations to deſtroy or take it, that it has long ſince deſerted the ſhores frequented by man, and taken refuge in countries that are as yet but thinly peopled.

When the Europeans firſt came to America, and coaſted down along the African ſhores, they found the flamingos on ſeveral ſhores on either continent, gentle, and no way diſtruſtful of mankind. When the fowler had killed one, the reſt of the flock, far from attempting to fly, only looked on the fall of their companion in a kind of fixed aſtoniſhment.

Another

Another and another ſhot was diſcharged; and thus the fowler often levelled the whole flock, before one of them began to think of eſcape.

But at preſent it is very different in that part of the world; and the flamingo is not only one of the ſcarceſt but of the ſhyeſt birds in the world. They chiefly keep near the moſt deſerted and inhoſpitable ſhores; near ſalt-water lakes and ſwampy iſlands. When ſeen by mariners in the day, they always appear drawn up in a long cloſe line of two or three hundred together; and, as Dampier tells us, at the diſtance of half a mile, they repreſent a long brick wall. Their rank, however, is broken when they ſeek for food; but they always appoint one of the number as a watch, whoſe only employment is to obſerve and in caſe of danger to apprize the reſt. As ſoon as this truſty centinel perceives the remoteſt appearance of danger, he gives a loud ſcream, with a voice as ſhrill as a trumpet, and inſtantly the whole cohort are upon the wing. The fleſh of the old ones is black and hard; though, Dampier ſays, delicious: that of the young ones is better. But, of all delicacies, the flamingo's tongue is the moſt celebrated. In fact, the Roman emperors conſidered the tongue of the flamingo as the higheſt luxury; and we have an account of one of them, who procured fifteen hundred flamingos' tongues to be ſerved up in a ſingle diſh. The tongue of this bird, which is ſo much ſought after, is a good deal larger than that of any other bird whatever. The bill of the flamingo is like a large black box, of an irregular figure, and filled with a tongue which is black and griſtly.

Their time of breeding is according to the climate in which they reſide: in North America they bread in our ſummer; on the other ſide the line they take the moſt favourable ſeaſon of the year. They build their neſts in extenſive marſhes, and where they are in no danger of a ſurprize. The neſt is raiſed from the ſurface of the pool about a foot and a half, formed of mud, ſcraped up together, and hardened by the ſun, or the heat of the bird's body: it reſembles a truncated cone, or one of the pots which we ſee placed on chimnies. On the top it is hollowed out to the ſhape of the bird, and in that cavity the female lays her eggs, without any lining but the cemented mud that forms the ſides of the building. She only lays two eggs, and, as her legs are immoderately long, ſhe ſtraddles on the neſt, while her legs hang down, one on each ſide into the water. It is a long time before the young are able to fly; but they run with amazing ſwiftneſs. They are ſometimes caught; and, very different from the old ones, ſuffer themſelves to be carried home, and are tamed very eaſily.

The Avoſetta, or ſcooper.

The Avoſetta, or Scooper, is chiefly found in Italy, and now and then comes into England. It is about the ſize of a pigeon, is a pretty erect bird, and has extremely long legs for its ſize; but the moſt extraordinary part of its figure is the bill, which turns up like a hook, in an oppoſite direction to that of the hawk or the parrot. This extraordinary bill is black, flat, ſharp and flexible at the end, and about three inches and a half long. From the circumſtance of this bird being bare a long way above the knee, it appears, that it lives and wades in the waters. It has a chirping, pert note, as we are told, and is web-footed, like the duck.

To

To this bird of the crane kind, ſo little known, I will add another, ſtill leſs known; the Corrira, or Runner. It has the longeſt legs of all web-footed fowls, the flamingo, and avoſetta: the bill is ſtraight, yellow, and black at the ends: the pupils of the eyes are ſurrounded with two circles; one of which is bay, and the other white. Below, near the belly, it is whitiſh: the tail, has two white feathers, and is black at the extremities; and the upper part of the body, is of the colour of ruſty iron.

To theſe birds of the crane kind may be added, a numerous tribe of ſmaller fowls, which are generally diſtinguiſhed by having their thighs partly bare. In this liſt is exhibited the Curlew, a bird of about the ſize of a duck, with a bill four inches long: the Woodcock, about the ſize of a pigeon, with a bill three inches long: the Godwit, of the ſame ſize, the bill four inches: the Green Shank, longer legged, the bill two inches and an half: the Red Shank, differing in the colour of its feet from the former: the Snipe, leſs by half, with a bill three inches. Then, with ſhorter bills,—the Ruff, with a collar of feathers round the neck of the male; the Knot, the Sand-piper, the Sanderling, the Dunlin, the Purro, and the Stint. To conclude, with bills very ſhort,—the Lapwing, the Green Plover, the Grey Plover, the Dottrel, the Turnſtone, and the Sea-Lark. Theſe, with their affinities, are properly natives or viſitants of this country, and are diſperſed along our ſhores, rivers, and watery grounds. To include the birds of this kind, belonging to other countries, the liſt would be very numerous; and the whole of this claſs, as deſcribed by Briſſon, would amount to near an hundred.

As theſe birds are uſually employed rather in running than in flying, and as their food lies entirely upon the ground, ſo they run with great ſwiftneſs for their ſize, and the length of their legs aſſiſts their velocity. But as, in ſeeking their food, they are often obliged to change their ſtation, ſo alſo are they equally ſwift of wing, and traverſe immenſe tracts of country, with little fatigue.

It has been thought by ſome, that a part of this claſs lived upon an oily ſlime, found in the bottoms of ditches and of weedy pools; but later diſcoveries have ſhewn, that, in theſe places, they hunt for the caterpillars, worms and inſects. The long-billed birds ſuck up worms and inſects from the bottom: thoſe furniſhed with ſhorter bills, pick up ſuch inſects as lie nearer the ſurface of the meadow, or among the ſands on the ſea-ſhore.

As all of this kind live entirely either in water, or among watery places, they ſeem provided by nature with a warmth of conſtitution to fit them for that cold element. They reſide, by choice, in the coldeſt climates; and, as other birds migrate here in our ſummer, their migrations hither are moſtly in the winter. Even thoſe that reſide among us the whole ſeaſon, retire, in ſummer, to the tops of our bleakeſt mountains; where they breed, and bring down their young when the cold weather begins.

The curlew, the woodcock, the ſnipe, the godwit, the grey plover, the green, and the long-legged plover, the knot, and the turnſtone, are rather the gueſts than the natives of this iſland, though the neſt of a ſtraggling curlew, or a ſnipe, is ſometimes found in our marſhes. They viſit us in the beginning of winter, and forſake us in the ſpring. They then

then retire to the mountains of Sweden, Poland, Pruſſia, and Lapland, to breed. Our country, during the ſummer ſeaſon, becomes uninhabitable to them. The ground parched by the heat, the ſprings dried up, and the vermicular inſects already upon the wing, they cannot ſubſiſt. Their weak and delicately-pointed bills are unfit to dig into a reſiſting ſoil; and their prey is departed, though they were able to reach its retreats. Thus, that ſeaſon when nature is ſaid to teem with life, and to put on her gayeſt liveries, is to them an interval of ſterility and famine.

The lapwing, the ruff, the red-ſhank, the ſand-piper, the ſee-pie, the Norfolk plover, and the ſea-lark, breed, and, for the moſt part, reſide in this country. In ſummer, they frequent ſuch marſhes as are not dried up in any part of the year; the Eſſex-hundreds, and the fens of Lincolnſhire. There, in ſolitudes formed by ſurrounding marſhes, they breed and rear their young. In winter, they come down from their retreats, rendered uninhabitable by the flooding of the waters, and ſeek their food about our ditches and marſhy meadow-grounds. Yet, even of this claſs, all are wanderers upon ſome occaſions, and take wing to the northern climates, to breed, and find ſubſiſtence. This happens when our ſummers are very dry, and when the fenny countries are not ſufficiently watered to defend their retreats.

As all theſe birds run and feed upon the ground, ſo they are all found to neſtle there. The number of eggs generally to be ſeen in every neſt, is from two to four; never more, and very ſeldom fewer. The neſt is made without any art; but the eggs are either laid in ſome little depreſſion of the earth, or on a few bents and long graſs, that ſcarcely preſerve them from the moiſture below.

The lapwing and the plover are often ſeen to fight among themſelves; but there is one little bird of this tribe, called the ruff, that has got the epithet of the fighter. In the beginning of the ſpring, when theſe birds arrive among our marſhes, they are obſerved to engage, with deſperate fury, againſt each other. It is then that the fowlers, ſeeing them intent on mutual deſtruction, ſpread their nets over them, and take them in great numbers: yet, even in captivity, their animoſity ſtill continues. The people that fat them up for ſale, are obliged to ſhut them up in cloſe, dark rooms; for, if they let ever ſo little light in among them, the turbulent priſoners inſtantly fight with each other, and never ceaſe till each has killed its antagoniſt, eſpecially, ſays Willoughby, if any body ſtands by. A ſimilar animoſity, though in leſs degree, prompts all this tribe; but when they have paired, and begun to lay, their contentions are over.

The place theſe birds chiefly chuſe to breed in, is in ſome iſland ſurrounded with ſedgy moors, where men ſeldom reſort; and in ſuch ſituations I have often ſeen the ground ſo ſtrewed with eggs and neſts, that one could ſcarce take a ſtep without breaking ſome of them. The arts of the lapwing to allure men or dogs from her neſt, are perfectly amuſing. When ſhe perceives the enemy approach, ſhe never waits till they arrive at her neſt, but boldly runs to meet them. When ſhe has come as near them as ſhe dares, ſhe then raiſes with a loud ſcreaming before them, ſeeming as if ſhe were juſt fluſhed from hatching; while ſhe is then probably a hundred yards from her neſt. Thus ſhe flies, with great clamour and anxiety, whining and ſcreaming

round the invaders, ſtriking at them with her wings, and fluttering as if ſhe were wounded.

The Water-Hen, and the Coot.

The water-hen, and the coot, have too near an affinity to one another, not to be ranked in the ſame deſcription. They are ſhaped entirely alike: their legs are long, and their thighs are partly bare: their necks are proportionable, their wings ſhort, their bills ſhort and weak, their colour black, their foreheads bald and without feathers, and their habits entirely the ſame. The water-hen weighs only fifteen ounces; but the coot weighs twenty-four. The bald part of the forehead in the coot is black; in the water-hen it is of a beautiful pink colour. The toes of the water-hen are edged with a ſtraight membrane; thoſe of the coot have it ſcolloped and broader.

Birds of the crane kind are furniſhed with long wings, and eaſily change place. The water-hen, on the other hand, whoſe wings are ſhort, is obliged to reſide near the ſide of the pond or the river in which ſhe ſeeks for proviſion. She builds her neſt upon low trees and ſhrubs, of ſticks and fibres, by the water ſide. She lays twice or thrice in a ſummer. Her young ſwim the moment they leave the egg, purſue their parent, and imitate all her manners. She rears, in this manner, two or three broods in a ſeaſon; and when the young are grown up, ſhe drives them off, to ſhift for themſelves.

As the coot is a larger bird, it is always ſeen in larger ſtreams, and more remote from mankind. It there makes a neſt of ſuch weeds as the ſtream affords, and lays them among the reeds, floating on the ſurface, and riſing and falling with the water. The reeds among which it is built, keep it faſt; ſo that it is ſeldom waſhed into the middle of the ſtream. But if this happen, which is ſometimes the caſe, the bird ſits in her neſt, like a mariner in his boat, and ſteers, with her legs, her cargo into the neareſt harbour. There, having attained her port, ſhe continues to ſit in great tranquillity, regardleſs of the impetuoſity of the current; and, though the water penetrates her neſt, ſhe hatches her eggs in that wet condition.

To theſe birds with long legs and finny toes, I will add one ſpecies more, with ſhort legs and finny toes: I mean the Grebe. It is much larger than either of the former, and its plumage is white and black. It differs alſo entirely in the ſhortneſs of its legs, which are made for ſwimming, and not for walking. In fact, they are, from the knee upward, hid in the belly of the bird, and have conſequently very little motion. By this mark, and by the ſcollopped fringe of the toes, this bird may be eaſily diſtinguiſhed from all others.

As, from the ſhortneſs of their wings, they are ill formed for flying, and from the uncommon ſhortneſs of their legs, quite unfit for walking, they ſeldom leave the water. And they chiefly frequent thoſe broad, ſhallow pools where their faculty of ſwimming can be turned to the beſt advantage, in fiſhing and ſeeking their prey.

In this country, they chiefly frequent the meres of Shropſhire and Cheſhire; where they breed among the reeds and flags, in a floating neſt. It is never ſeen on land; and, though diſturbed ever ſo often, will not leave that lake where alone, by diving and ſwimming, it can find food and ſecurity. It is chiefly ſought for the ſkin of its breaſt, the plumage of which is of a moſt beautiful ſilvery white, and as gloſſy as ſatin.

CHAP.

CHAP. XXVIII.

OF WATER-FOWL—THE PELICAN—THE ALBATROSS—THE CORMORANT—THE SOLAND GOOSE—THE GULL—THE PETREL—THE PENGUIN—THE DIVER—THE AUK—THE GUILLIMOT—THE PUFFIN—THE GOOSEANDER—THE SWAN—THE GOOSE—THE BARNACLE—THE BRENT GOOSE—THE DUCK—THE EIDER DUCK—THE SCHOOTER—THE SHELDRAKE—THE POCHARD—THE WIDGEON—THE TEAL—THE MUSCOVY DUCK, &c.—OF DECOYS FOR TAKING DUCKS—THE KING FISHER.

The Pelican.

THE Pelican of Africa is much larger than a ſwan, and ſomewhat of the ſame ſhape and colour. Its four toes are all webbed together; and its neck, in ſome meaſure, reſembles that of a ſwan. It differs however, from all other birds, in the bill, and the great pouch underneath, which are wonderful, and demand a diſtinct deſcription. This enormous bill is fifteen inches from the point to the opening of the mouth, which is a good way back behind the eyes. The baſe of the bill is ſomewhat greeniſh; but it varies towards the end, being of a reddiſh blue. To the lower edges of the under-chap, hangs a bag, reaching the whole length of the bill to the neck, which is ſaid to be capable of containing fifteen quarts of water. This bag the bird has a power of wrinkling up into the hollow of the under-chap; but, by opening the bill, and putting one's hand down into the bag, it may be diſtended at pleaſure. It is not covered with feathers, but with a ſhort downy ſubſtance, as ſmooth and as ſoft as ſatin. Tertre affirms, that this pouch will contain as many fiſh as will ſerve ſixty hungry men for a meal. Such is the formation of this extraordinary bird, which is a native of Africa and America. It was once alſo known in Europe, particularly in Ruſſia; but it ſeems to have deſerted our coaſts.

The pelicans are of an aſh-colour. They are torpid to the laſt degree, and nothing can exceed their indolence but their gluttony. It is only from the ſtimulations of hunger, that they are excited to labour; for otherwiſe they would continue always in fixed repoſe. When they have raiſed themſelves about thirty or forty feet above the ſurface of the ſea, they turn their head, with one eye downwards, and continue to fly in that poſture. As ſoon as they perceive a fiſh ſufficiently near the ſurface, they dart down upon it with the ſwiftneſs of an arrow, ſeize it with unerring certainty, and ſtore it up in their pouch. They then riſe again, though not without great difficulty, and continue hovering and fiſhing, with their head on one ſide, as before.

They continue this work, with great effort and induſtry, till their bag is full; and then they fly to land, to devour and digeſt at leiſure, the fruits of their induſtry. Towards night, they have another hungry call; and they muſt again go to labour. Their life is ſpent between ſleeping and eating; and they are as foul as they are voracious, as they are every moment voiding excrements. The female makes no preparation for her neſt, nor ſeems to chuſe any place in preference to lay

in, but drops her eggs on the bare ground, to the number of five or ſix, and there continues to hatch them. Their fleſh is uſeleſs.

With all the ſeeming indolence of this bird, it is not entirely incapable of inſtruction in a domeſtic ſtate. Father Raymond aſſures us, that he has ſeen one ſo tame and well educated among the native Americans, that it would go off in the morning, at the word of command, and return before night to its maſter, with its great paunch diſtended with plunder; a part of which the ſavages would make it diſgorge, and a part they would permit it to reſerve for itſelf. "The pelican," as Faber relates, "is not deſtitute of other qualifications. One of thoſe which was brought alive to the Duke of Bavaria's court, where it lived forty years, ſeemed to poſſeſs very uncommon ſenſations. It was much delighted in the company and converſation of men, and in muſic, both vocal and inſtrumental. It would willingly ſtand," ſays he "by thoſe that ſung or ſounded the trumpet; and, ſtretching out its head, and turning its ear to the muſic, would liſten very attentively to its harmony, though its own voice was little better than the braying of an aſs."'

Geſner tells us, that the emperor Maximilian had a tame pelican which lived above eighty years, and which always attended his army on their march.

The Albatroſs.

The albatroſs is one of the largeſt and moſt formidable birds of Africa and America. Its body is rather larger than that of a pelican; and its wings, when extended, are ten feet from the tip of the one to that of the other. The bill, which is ſix inches long, is yellowiſh, and terminates in a crooked point. The top of the head is of a bright brown; the back is of a dirty deep ſpotted brown; and the belly and the parts under the wings are white. The toes, which are webbed, are of a fleſh colour.

This bird is an inhabitant of the tropical climates, and alſo beyond them, as far as the Streights of Magellan, in the South Seas. It not only eats fiſh, but alſo ſuch ſmall water-fowl as it can take by ſurprize. It preys, as all the gull kind do, upon the wing, and chiefly purſues the flying fiſh that are forced from the ſea by the dolphins.

The albatroſs ſeems to have a peculiar affection for the penguin, and a pleaſure in its ſociety. They are always ſeen to chuſe the ſame places of breeding; ſome diſtant, uninhabited iſland, where the ground ſlants to the ſea, as the penguin is not formed either for flying or climbing. In ſuch places their neſts are ſeen together, as if they ſtood in need of mutual aſſiſtance and protection. In the middle, on high, the albatroſs raiſes its neſt, on heath ſticks and long graſs, about two feet above the ſurface. Round this again the penguins make their lower ſettlements, rather in holes in the ground; and moſt uſually there are eight penguins for one albatroſs.

The Cormorant.

The Cormorant is about the ſize of a large Muſcovy duck, and may be diſtinguiſhed from all other birds of this kind, by its four toes being united by membranes together; and by the middle toe bing toothed or notched, like a ſaw, to aſſiſt it in holding its fiſhy prey. The head and neck of this bird are of a ſooty black; and the body thick and heavy, more inclining in figure to that of the gooſe than the gull. As ſoon

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as the winter approaches, they are ſeen diſperſed along the ſea-ſhore, and aſcending up the mouths of freſh-water rivers, carrying deſtruction to all the finny tribe. They are moſt remarkably voracious, and have a moſt ſudden digeſtion. Their appetite is for ever craving, and never ſatisfied. This gnawing ſenſation may probably be increaſed by the great quantity of ſmall worms that fill their inteſtines, and which their inceſſant gluttony contributes to engender.

This bird has the moſt rank and diſagreeable ſmell, and is more fœtid than even carrion, itſelf. It is ſeen as well by land as ſea; it fiſhes in freſh-water lakes, as well as in the depths of the ocean. It builds in the cliffs of rocks, as well as on trees; and preys not only in the day-time, but by night.

Its indefatigable nature, and its great power in catching fiſh, were probably the motives that induced ſome nations to tame this bird, for the purpoſes of fiſhing. The deſcription of their manner of fiſhing is thus delivered by Faber. "When they carry them out of the rooms where they are kept, to the fiſh-pools, they hood-wink them, that they may not be frightened by the way. When they arrive at the rivers, they take off their hoods; and having tied a leather thong round the lower part of their necks, that they may not ſwallow down the fiſh they catch, they throw them into the river. They preſently dive under water, where, for a long time, with wonderful ſwiftneſs, they purſue the fiſh; and when they have caught them, riſe to the top of the water, and preſſing the fiſh lightly with their bills, ſwallow them; till each bird hath, after this manner, devoured five or ſix fiſhes. Then their keepers call them to the fiſt, to which they readily fly; and, one after another vomit up all their fiſh, a little bruiſed with the nip given in catching them. When they have done fiſhing, they ſet the birds on ſome high place, looſe the ſtring from their necks, leaving the paſſage to the ſtomach free and open; and, for their reward, they throw them part of their prey; to each one or two fiſhes, which they will catch moſt dexterouſly, as they are falling in the air." At preſent, the cormorant is trained up in every part of China for the ſame purpoſe. "It is very pleaſant to ſee with what ſagacity they portion out the lake or the canal where they are upon duty. When they have found their prey, they ſeize it with their beak by the middle, and carry it without fail to their maſter. When the fiſh is two large, they mutually aſſiſt each other. One ſeizes it by the head, the other by the tail, and in this manner carry it to the boat together. They have always, while they fiſh, a ſtring faſtened round their throats, to prevent them from devouring their prey."

The Gannet, or Soland Gooſe.

The Gannet, or Soland Gooſe, is of the ſize of a tame gooſe, but its wings are much longer, being ſix feet over. The bill is ſix inches long, ſtraight almoſt to the point. It differs from the cormorant in ſize, being larger; in its colour, which is chiefly white; and by having no noſtrils, but in their place a long furrow that reaches almoſt to the end of the bill. From the corner of the mouth is a narrow ſlip of black bare ſkin, that extends to the hinder part of the head. Beneath the ſkin is another that, like the pouch of the pelican, is dilatable, and of ſize ſufficient to contain five or ſix entire herrings, which in the breeding ſeaſon it carries at once to its mate or its young.

Theſe

Theſe birds, which ſubſiſt entirely upon fiſh, chiefly reſort to thoſe uninhabited iſlands where their food is found in plenty, and where men ſeldom diſturb them. The iſlands to the north of Scotland, the Skelig iſlands off the coaſts of Kerry, in Ireland, and thoſe that lie in the north ſea off Norway, abound with them. But it is on the Baſs iſland, in the Firth of Forth where they are ſeen in the greateſt abunance. "It is ſcarcely poſſible to walk there without treading on them: the flocks of birds upon the wing, are ſo numerous, as to darken the air like a cloud; and their noiſe is ſuch, that one cannot, without difficulty, be heard by the perſon next to him."

The gannet is a bird of paſſage. In winter it ſeeks the more ſouthern coaſts of Cornwall, hovering over the ſhoals of herrings and pilchards which in that ſeaſon come down from the northern ſeas. Its firſt appearance in the northern iſlands is in the beginning of ſpring; and it continues to breed till the end of ſummer. But, in general, its motions are determined by the migrations of the immenſe ſhoals of herrings that come pouring down at that ſeaſon through the Britiſh Channel, and ſupply all Europe as well as this bird with their ſpoil. The gannet aſſiduouſly attends the ſhoal in their paſſage, keeps with them in their whole circuit round our iſland, and ſhares with our fiſhermen this exhauſtleſs banquet. As it is ſtrong of wing, it never comes near the land; but is conſtant to its prey. The young gannet is reckoned a great dainty in Scotland, and ſells very high.

The Gull.

The Gull, and all its varieties, is very well known in every part of the kingdom. With a ſlow-ſailing flight it hovers over rivers, to prey upon the ſmaller kinds of fiſh: it follows the plowman in fallow fields to pick up inſects; and when living animal food does not offer, it contents itſelf with carrion and whatever elſe of the kind it can fall in with. Gulls are found in great plenty in every place; but it is chiefly round our rockieſt ſhores that they are ſeen in the greateſt abundance. It is there that the gull breeds and brings up its young: it is there that millions of them are heard ſcreaming with diſcordant notes for months together.

Thoſe who are acquainted with our coaſts know that there are two different kinds of ſhores; that which ſlants down to the water with a gentle declivity, and that which riſes with a precipitate boldneſs, and ſeems ſet as a bulwark to repel the force of the invading deeps. It is to the laſt ſort of ſhores that the whole tribe of the gull-kind reſort, as the rocks afford them a retreat for their young, and the ſea a ſufficient ſupply.

Theſe birds, like all others of the rapacious kind, lay but few eggs; and hence, in many places, their number is daily ſeen to diminiſh. Moſt of the kind are fiſhy taſted, with black ſtringy fleſh. The young ones however, are better food; and of theſe, with ſeveral other birds of the penguin kind, the poor inhabitants of our northern iſlands make their wretched banquets. They have been long uſed to no other food; and even ſalted gull can be reliſhed by thoſe who know no better. Of the gull ſpecies there are more than twenty different kinds; of the PETREL three, and of the ſea-ſwallow the ſame number. They have all nearly the ſame habits, the ſame nature, and are caught in the ſame manner, either by covering their neſts with a net, or by ſtriking them with a pole as they fly out of their holes.

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The Penguin.

The Penguin is but ill fitted for flight, and ſtill leſs for walking. The largeſt of this kind, indeed, which have a thick, heavy body to raiſe, cannot fly at all. Their wings ſerve them rather as paddles to help them forward, when they attempt to move ſwiftly; and in a manner walk along the ſurface of the water. Even the ſmaller kinds ſeldom fly by choice. They flutter their wings with the ſwifteſt efforts without making way; and though they have but a ſmall weight of body to ſuſtain, yet they ſeldom venture to quit the water where they are provided with food and protection.

As the wings of the penguin tribe are not fit for flight, their legs are ſtill more awkwardly adapted for walking. This whole tribe have all above the knee hid within the belly; and nothing appears but two ſhort legs, or feet, as ſome would call them, that ſeem ſtuck under the rump and upon which the animal is very awkwardly ſupported. They ſeem, when ſitting or attempting to walk, like a dog that has been taught to ſit up, or to move a minuet. Their ſhort legs drive the body in progreſſion from ſide to ſide; and were they not aſſiſted by their wings, they could ſcarcely move faſter than a tortoiſe.

This awkward poſition of the legs, which ſo diſqualifies them for living upon land, adapts them admirably for a reſidence in water. For in water, the legs placed behind the moving body, puſhes it forward with greater velocity; and theſe birds, like Indian canoes, are the ſwifteſt in the water, by having their paddles in the rear.

As they never viſit land, except when they come to breed, their feathers take a colour from their ſituation. That part of them which has been continually bathed in the water, is white; while their backs and wings are of different colours, according to the different ſpecies. They are alſo covered more warmly all over the body with feathers, than any other birds whatever; ſo that the ſea ſeems entirely their element.

The Magellanic Penguin, in ſize, approaches near that of a tame gooſe. They walk erect with their heads on high, their fin-like wings hanging down like arms. To ſee them therefore, at a diſtance, they look like ſo many children with white aprons. Hence they are ſaid to unite in themſelves the qualities of men, fowls, and fiſhes. Like men, they are upright; like fowls they are feathered; and like fiſhes, they have fin-like inſtruments, that beat the water before, and ſerve for all the purpoſes of ſwimming rather than of flying.

They feed upon fiſh; and ſeldom come aſhore, except in the breeding ſeaſon. Their fleſh is rank and fiſhy; though our ſailors ſay, that *it is pretty good eating*. In ſome the fleſh is ſo tough, and the feathers ſo thick, that they ſtand the blow of a ſcymitar without injury.

The penguin lays but one egg; and in frequented ſhores, is found to burrow like a rabbit. Sometimes three or four take poſſeſſion of one hole, and hatch their young together. The egg of the penguin, as well as of all this tribe, is very large for the ſize of the bird, being generally found bigger than that of a gooſe. But as there are many varieties of the penguin, and as they differ in ſize, from that of a Muſcovy duck to a ſwan, the eggs differ in the ſame proportion.

The Auk, Puffin, and other birds of the Penguin Kind.

Of a ſize far inferior to the penguin, but with nearly the ſame form, and exactly of the ſame appetites and manners, there is a very numerous tribe.

tribe. The firſt of theſe is the Great Northern Diver, which is nearly of the ſize of a gooſe. It is beautifully variegated all over with many ſtripes, and differs from the penguin, in being much ſlenderer and more elegantly formed. The Grey Speckled Diver does not exceed the ſize of a Muſcovy duck; and, except in ſize, greatly reſembles the former. The Auk breeds on the iſland of St Kilda, and chiefly differs from the penguin in ſize and colour. It is ſmaller than a duck; and the whole of the breaſt and belly, as far as the middle of the throat, is white. The Guillemot is about the ſame ſize; and it differs from the auk, in having a longer, a ſlenderer, and a ſtraighter bill. The Scarlet Throated Diver may be diſtinguiſhed by its name; and the Puffin or Coulterneb, is one of the moſt remarkable birds we know.

Words cannot eaſily deſcribe the form of the bill of the puffin, which differs ſo greatly from that of any other bird. Thoſe who have ſeen the coulter of a plough, may form ſome idea of the beak of this odd-looking animal. It is flat; but, very different from that of the duck, its edge is upwards. It is of a triangular figure, and ending in a ſharp point. It is of two colours; aſh coloured near the baſe, and red towards the point. It has three furrows or grooves impreſſed in it; one in the livid part, two in the red. The eyes are fenced with a protuberant ſkin, of a livid colour; and they are grey or aſh-coloured.

The puffin, like all the reſt of this kind, has its legs thrown ſo far back, that it can hardly move without tumbling. This makes it riſe with difficulty, and ſubject to many falls before it gets upon the wing; but as it is a ſmall bird, not much bigger than a pigeon, when it once riſes, it can fly with great ſwiftneſs.

Both this and all the former build no neſt; but lay their eggs either in the crevices of rocks, or in holes under ground near the ſhore. They prefer the latter ſituation; for the puffin, the auk, the guillemot, and the reſt, cannot eaſily riſe to the neſt when in a lofty ſituation.

All the winter theſe birds viſit regions too remote for diſcovery. At the latter end of March, or the beginning of April, come over a troop of their ſpies or harbingers, that ſtay two or three days, as it were to ſearch out for their former ſituations, and ſee whether all be well. This done they once more depart; and, about the beginning of May, return again with all their companions. But if the ſeaſon happen to be ſtormy and tempeſtous; and the ſea troubled, the unfortunate voyagers undergo incredible hardſhips; and they are found, by hundreds, caſt away upon the ſhores, emaciated and periſhed with famine.

When the puffin prepares for breeding, which always happens a few days after its arrival, it begins by ſcraping up an hole in the ground not far from the ſhore. And when it has penetrated the earth a little, it then throws itſelf upon its back, and with bill and claws thus burrows inward, till it has dug a hole with ſeveral windings and turnings, from eight to ten feet deep. It particularly ſeeks to dig under a ſtone, where it expects the greateſt ſecurity. In this fortified retreat it lays one egg; which, though the bird be not much bigger than a pigeon, is of the ſize of a hen's.

Few birds or beaſts will venture to attack them in their retreats. When the great ſea-raven comes to take away their young, the puffins boldly oppoſe him. Their meeting affords a moſt ſingular combat. As ſoon as the raven approaches, the puffin catches him under the throat

throat with its beak, and ſticks its claws into his breaſt. This makes the raven, with a loud ſcreaming, attempt to get away; but the little bird ſtill holds faſt to the invader, nor lets him go till they both come to the ſea, where they drop down together, and the raven is drowned. Yet the raven is but too often ſucceſsful; and invading the puffin at the bottom of its hole, devours both the dam and its young.

The Gooſeander.

The gooſeander is a bird with the body and wing ſhaped like thoſe of the penguin kind, but with legs not hid in the belly. It may be diſtinguiſhed from all others by its bill, which is round, hooked at the point, and toothed, both upper and under chap, like a ſaw. Its colours are various and beautiful. Its manners and appetites, however, entirely reſemble thoſe of the diver. It feeds upon fiſh, for which it dives; and it is ſaid to build its neſt upon trees, like the heron and the cormorant. It ſeems to form the ſhade between the penguin and the gooſe kind; having a round bill, like the one; and unembarraſſed legs, like the other. In the ſhape of the head, neck, and body, it reſembles them both.

The Swan, the Gooſe, and the Duck.

Though theſe birds do not reject animal food when offered them, yet they can ſubſiſt upon vegetables, and ſeldom ſeek any other. They are eaſily provided for; wherever there is water. All the other web-footed tribes are continually voracious, continually preying. Theſe lead more harmleſs lives. The weeds on the ſurface of the water, or the inſects at the bottom, the graſs by the bank, or the fruits and corn in cultivated grounds, are ſufficient to ſatisfy their eaſy appetites.

They breed in great abundance, and lead their young to the pool the inſtant they are excluded.

As their food is ſimple, ſo their fleſh is nouriſhing and wholeſome. The ſwan was conſidered as a high delicacy among the ancients; the gooſe was abſtained from as totally indigeſtible. Modern manners have inverted taſtes; the gooſe is now become the favourite; and the ſwan is ſeldom brought to table unleſs for the purpoſes of oſtentation. But at all times the fleſh of the duck was in high eſteem: the ancients thought even more highly of it than we do. We are contented to eat it as a delicacy: they alſo conſidered it as a medicine; and Plutarch aſſures us, that Cato adminiſtered duck to his family, whenever they happened to be indiſpoſed.

No bird makes a more indifferent figure upon land, or a more beautiful one in the water, than the *Swan*. This fine bird has long been rendered domeſtic. The wild ſwan, though ſo ſtrongly reſembling this in colour and form, is very differently formed within. The wild ſwan is leſs than the tame almoſt a fourth; for as the one weighs twenty pounds, the other only weighs ſixteen pounds and three quarters. The colour of the tame ſwan is all white; that of the wild bird is, along the back and the tips of the wings, of aſh-colour. But theſe are ſlight differences, compared to what are found upon diſſection.

This beautiful bird is as delicate in its appetites, as elegant in its form. Its chief food is corn, bread, water-herbs, and roots and ſeeds, which are found near the margin. It prepares a neſt in ſome retired part of the bank, and chiefly where there is an iſlet in the ſtream. It is compoſed of water-plants, long graſs, and ſticks. The ſwan lays

ſeven or eight eggs, white, much larger than thoſe of a gooſe, with a hard ſhell. It ſits near two months before its young are excluded; which are aſh-coloured when they firſt leave the ſhell, and for ſome months after.

All the ſtages of this bird's approach to maturity are ſlow, and ſeem to mark its longevity. It is two months in hatching; a year in growing to its proper ſize. The ſwan is ſaid to be remarkable for its longevity. A gooſe has been known to live an hundred years; and the ſwan, from its ſuperior ſize, and from its harder, firmer fleſh, may naturally be ſuppoſed to live ſtill longer.

The Gooſe.

The gooſe, in its domeſtic ſtate, exhibits a variety of colours. The wild gooſe always retains the ſame marks: the whole upper part is aſh-coloured: the breaſt and belly are of a dirty white: the bill is narrow at the baſe, and at the tip it is black. The legs are of a ſaffron colour, and the claws are black.

The wild gooſe is ſuppoſed to breed in the northern parts of Europe; and, in the beginning of winter, to deſcend into more temperate regions. If they come to the ground by day, they range themſelves in a line, like cranes; and ſeem rather to have deſcended for reſt, than for any other purpoſe. When they have ſat in this manner for an hour or two, I have heard one of them, with a loud long note, ſound a kind of charge, to which the reſt punctually attended, and they purſued their journey with renewed alacrity. Their flight is very regularly arranged. They either go in a line a-breaſt, or in two lines, joining in an angle in the middle.

The Barnacle.

The barnacle differs in ſome reſpects from both theſe; being leſs than either, with a black bill, much ſhorter than either of the preceding. It is ſcarce neceſſary to combat the idle error of this bird being bred from a ſhell ſticking to the bottom of ſhips. It is well known to be hatched from an egg, in the ordinary manner, and to differ in very few particulars from all the reſt of its kind.

The Brent Gooſe.

The brent gooſe is ſtill leſs than the former, and not bigger than a Muſcovy duck, except that the body is longer. The head, neck, and upper part of the breaſt, are black. About the middle of the neck, on each ſide, are two ſmall ſpots or lines of white, which together appear like a ring.

The Tame Duck.

The tame duck is the moſt eaſily reared of all our domeſtic animals. The wild duck differs, in many reſpects, from the tame; and in them there is ſtill greater variety than among the domeſtic kinds. Of the tame duck there are not leſs than ten different ſorts; and of the wild, Briſſon reckons above twenty. The moſt obvious diſtinction between wild and tame ducks is in the colour of their feet; thoſe of the tame duck being black; but thoſe of the wild one yellow. The difference between wild ducks among each other, ariſes as well from their ſize as the nature of the place they feed in. Sea-ducks, which feed in the ſalt-water, and dive much, have a broad bill, bending upwards, a large hind toe, and a long blunt tail. Pond-ducks, which feed in plaſhes,

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have a ſtraight and narrow bill, a ſmall hind toe, and a ſharp pointed train. The former are called, by our decoy-men, foreign ducks; the latter are ſuppoſed to be natives of England. In this tribe, we may rank, as natives of our own European dominions, the *Eider Duck*, which is twice the ſize of a common duck, with a black bill. We may alſo rank the *Velvet Duck*, with a yellow bill; the *Scoter*, with a knob at the baſe of a yellow bill; the *Tufted Duck*, adorned with a thick creſt; the *Scaup Duck*, leſs than the common Duck, with the bill of a greyiſh blue colour; the *Golden Eye*, with a large white ſpot at the corners of the mouth, reſembling an eye; the *Sheldrake*, with the bill of a bright red, and ſwelling into a knob; the *Mallard*, which is the ſtock whence our tame breed has probably been produced. It may not be improper to claſs with theſe, the *Pintail*, with the two middle feathers of the tail three inches longer than the reſt; the *Pochard*, with the head and neck of a bright bay; the *Widgeon*, with a lead coloured bill, and the plumage of the back marked with narrow black and white undulated lines, but beſt known by its whiſtling ſound. Laſtly, we may add the *Teal*, which is the ſmalleſt of this kind, with the bill black, the head and upper part of the neck of a bright bay. Theſe are the moſt common birds of the duck kind among ourſelves; but who can deſcribe the amazing variety of this tribe, if he extends his view to the different quarters of the world? The moſt diſtinguiſhed of the foreign tribe are, the *Muſcovy Duck*, or, more properly ſpeaking, the Muſk Duck, a native of Africa, ſo called from a ſuppoſed muſky ſmell, with naked ſkin round the eyes. The *Braſilian Duck*, which is of the ſize of a gooſe, all black except the tips of the wings. The *American Wood Duck*, with a variety of beautiful colours, and a plume of feathers which falls from the back of the head like a friar's cowl. Theſe, and many more, might be added, were increaſing the number of names the way to enlarge the ſphere of our knowledge.

All theſe live in the manner of our domeſtic ducks, keeping together in flocks in the winter, and flying in pairs in ſummer, rearing their young by the water-ſide, and leading them to their food as ſoon as out of the ſhell. Their neſts are uſually built among heath or ruſhes, not far from the water; and they lay twelve, fourteen, or more eggs before they ſit; yet this is not always their method. The dangers they continually encounter from their ſituation, ſometimes obliges them to change their manner of building; and their awkward neſts are often ſeen exalted on the tops of trees. This muſt be a very great labour to perform, as the duck's bill is but ill-formed for building a neſt, and giving the materials of which it is compoſed a ſufficient ſtability to ſtand the weather. The neſt, whether high or low, is generally compoſed of the longeſt graſs, mixed with heath, and is lined within with the bird's own feathers. The eider duck is particularly remarkable for the warmth of its neſt. This bird, which, as was ſaid, is above twice as large as the common duck, and reſides in the colder climates, lays from ſix to eight eggs, making her neſt among the rocks or the plants along the ſea-ſhore. The external materials of the neſt are ſuch as are common with the reſt of the kind; but the inſide lining, on which the eggs are immediately depoſited, is at once the ſofteſt, warmeſt, and the lighteſt ſubſtance with which we are acquainted. This is no other than the inſide down which covers the breaſt of the bird in

the breeding ſeaſon. This the female plucks off with her bill, in order to line the inſide of her neſt. The natives watch the place where ſhe begins to build, and ſuffering her to lay, take away both the eggs and the neſt. The duck, however, not diſcouraged by the firſt diſappointment, builds and lays in the ſame place a ſecond time, which they take away in the ſame manner. The third time ſhe builds, the drake muſt ſupply the down from his breaſt to line the neſt with: and, if this be robbed, they both forſake the place, and breed there no more. This down the natives take care to ſeparate from the dirt and moſs with which it is mixed; and, though no people ſtand in more need of a warm covering than themſelves, yet their neceſſities compel them to ſell it to the more indolent and luxurious inhabitants of the ſouth, for brandy and tobacco.

As theſe animals poſſeſs the faculties of flying and ſwimming, ſo they are in general birds of paſſage, and it is moſt probable that they perform their journies acroſs the ocean as well on the water as in the air. Thoſe that migrate to this country, on the approach of winter, are ſeldom found ſo well taſted or ſo fat as the fowls that continue with us the year round. Their fleſh is often lean, and ſtill oftener fiſhy; which flavour it has probably contracted in the journey, as their food in the lakes of Lapland, whence they deſcend, is generally of the inſect kind.

As ſoon as they arrive among us, they are generally ſeen flying in flocks to make a ſurvey of thoſe lakes where they intend to take up their reſidence for the winter. Lakes, with a marſh on one ſide, and a wood on the other, almoſt always abound with wild fowl. The greateſt quantities are taken in decoys; which, though well known near London, are yet untried in the remoter parts of the country. The manner of making and managing a decoy is as follows:

A place is to be choſen for this purpoſe far remote from the common highway, and all noiſe of people. When the place is choſen, the pool, if poſſible, is to be planted round with willows, unleſs a wood anſwers the purpoſe of ſhading it on every ſide. On the ſouth and north ſide of this pool are two, three, or four ditches or channels, made broad towards the pool, and growing narrower till they end in a point. Theſe channels are to be covered over with nets, ſupported by hooped ſticks bending from one ſide to the other. They therefore, form a vault or arch growing narrower and narrower to the point, where it is terminated by a tunnel-net, like that in which fiſh are caught in weirs. Along the banks of theſe channels ſo netted over, which are called pipes, many hedges are made of reeds ſlanting to the edge of the channel, the acute angles to the ſide next the pool. The whole apparatus alſo is to be hidden from the pool by a hedge of reeds along the brink, behind which the fowler manages his operations. The place being fitted in this manner, the fowler is to provide himſelf with a number of wild ducks tamed, which are called decoys. Theſe are always to be fed at the mouth or entrance of the pipe, and to be accuſtomed to come at a whiſtle.

As ſoon as the evening is ſet in, *the decoy riſes*, as they term it, and the wild fowl feed during the night. If the evening be ſtill, the noiſe of their wings, during their flight, is heard at a very great diſtance, and produces no unpleaſing ſenſation. The fowler, when he finds a fit opportunity, and ſees his decoy covered with fowl, walks about the pool,

pool, and obſerves into what pipe the birds gathered in the pool may be enticed. Then caſting hemp-ſeed, or ſome ſuch ſeed as will float on the ſurface of the water, at the entrance and up along the pipe, he whiſtles to his decoy ducks, who inſtantly obey the ſummons, and come to the entrance of the pipe, in hopes of being fed as uſual. Thither alſo they are followed by a whole flock of unſuſpecting wild ones. The wild ducks, therefore, purſuing the decoy ducks, are led into the broad mouth of the channel or pipe, nor have the leaſt ſuſpicion of the man who keeps hidden behind one of the hedges. When they have got up the pipe, however, finding it grow more and more narrow, they begin to ſuſpect danger, and would return back; but they are now prevented by the man, who ſhews himſelf at the broad end below. Thither, therefore, they dare not return; and riſe they cannot, as they are kept by the net above from aſcending. The only way left them, therefore, is the narrow-funnelled net at the bottom; into this they fly, and there they are taken.

It often happens, however, that the wild fowl are in ſuch a ſtate of ſleepineſs or dozing, that they will not follow the decoy ducks. Uſe is then generally made of a dog that is taught his leſſon. He paſſes backward and forward between the reed-hedges, in which there are little holes, both for the decoy man to ſee, and for the little dog to paſs through. This attracts the eye of the wild fowl; which, prompted by curioſity, advance towards this little animal, while he all the time keeps playing among the reeds, nearer and nearer the funnel, till they follow him too far. Sometimes the dog will not attract their attention till a red handkerchief, or ſomething very ſingular, be put about him. The decoy ducks never enter the funnel-net with the reſt, being taught to dive under water as ſoon as the reſt are got in.

To this manner of taking wild fowl in England, I will ſubjoin another ſtill more extraordinary, frequently practiſed in China. Whenever the fowler ſees a number of ducks ſettled in any particular plaſh of water, he ſends off two or three gourds to float among them. Theſe gourds reſemble our pompions; but, being made hollow, they ſwim on the ſurface of the water; and on one pool there are ſometimes twenty or thirty of theſe gourds floating together. The fowls at firſt are a little ſhy; but by degrees they come nearer; and as all birds at laſt grow familar with a ſcare-crow, the ducks gather about the gourds, and amuſe themſelves by whetting their bills againſt them. When the birds are as familiar with them as the fowler could wiſh, he then prepares to deceive them in good earneſt. He hollows out one of them large enough to put his head in; and, making holes to breathe and ſee through, he claps it on his head. Thus accoutred, he wades ſlowly into the water, keeping his body under, and nothing but his head in the gourd above the ſurface; and in that manner moves imperceptibly towards the unwary fowls. At laſt, however, he fairly gets in among them; while they, having been long uſed to ſee gourds, are not the leaſt afraid while the enemy is in the midſt of them, who as ſoon as he approaches a fowl, he ſeizes it by the legs, and draws it in under the water. There he faſtens it under his girdle, and goes to the next, till he has thus loaded himſelf with as many as he can carry off. When he has got his quantity, without ever attempting to diſturb the reſt of the fowls on the pool, he ſlowly moves off again; and in this manner pays the flock

flock three or four viſits in a day. Of all the various artifices for catching fowl, this ſeems likely to be attended with the greateſt ſucceſs.

Of the King-Fiſher.

I will conclude this hiſtory of birds, with one that ſeems to unite in itſelf ſomewhat of every claſs preceding.

The king-fiſher is not much larger than a ſwallow: its ſhape is clumſy: the legs are diſproportionably ſmall, and the bill diſproportionably long. It is two inches from the baſe to the tip: the upper chap is black, and the lower yellow; but the colours of this bird atone for its inelegant form. The crown of the head and the covers of the wings are of a deep blackiſh green, ſpotted with bright azure: the back and tail are of the moſt reſplendent azure: the whole under ſide of the body is orange coloured: a broad mark of the ſame paſſes from the bill beyond the eyes; beyond which is a large white ſpot. The tail is ſhort, and conſiſts of twelve feathers of a rich deep blue: the feet are of a reddiſh yellow, and the three joints of the outmoſt toe adhere to the middle toe, while the inner toe adheres only by one.

From the diminutive ſize, the ſlender ſhort legs, and the beautiful colours of this bird, no perſon would ſuppoſe it one of the moſt rapacious animals that ſkims the deep. Yet it is for ever on the wing, and feeds on fiſh, which it takes in ſurpriſing quantities, when we conſider its ſize and figure. It chiefly frequents the banks of rivers, and takes its prey after the manner of the oſprey, balancing itſelf at a certain diſtance above the water for a conſiderable ſpace, then darting into the deep, and ſeizing the fiſh with inevitable certainty. While it remains ſuſpended in the air, in a bright day, its plumage exhibits a beautiful variety of the moſt dazzling and brilliant colours.

The king-fiſher builds its neſt by the river ſide in a hole which it burrows out itſelf, or in the deſerted hole of a rat. In theſe holes, which, from the remains of fiſh brought there, are very fœtid, the king-fiſher is often found with from five eggs to nine. There the female continues to hatch even though diſturbed; and though the neſt be robbed, ſhe will again return and lay there. The male, whoſe fidelity exceeds even that of the turtle, brings her large proviſions of fiſh while ſhe is thus employed; and ſhe, contrary to what is uſual with moſt other birds, is found plump and fat at that ſeaſon.

The ancients have had their fables concerning this bird, and ſo have the modern vulgar. It is an opinion generally received among them, that the fleſh of the king-fiſher will not corrupt, and that it will even baniſh all vermin. This has no better foundation than that which is ſaid of it always pointing, when hung up dead, with its breaſt to the north. The only truth which can be affirmed of this bird when killed is, that its fleſh is utterly unfit to be eaten; while its beautiful plumage preſerves its luſtre longer than that of any other bird with which we are acquainted.

CHAP.

CHAP. XXIX.

OF FISHES IN GENERAL—OF CETACEOUS FISHES—THE WHALE—THE SWORD FISH—THE NARWHALE, OR UNICORN—THE SPERMACETI WHALE—THE DOLPHIN—GRAMPUS, PORPESSE, &c.

THE number of fiſh to which we have given names, and with the figure of which at leaſt we are a little acquainted, is, according to Linnæus, above four hundred. The majority of theſe are confined to the ſea, and would expire in the freſh water, though there are a few which annually ſwim up the rivers, to depoſit their ſpawn.

The chief inſtruments of a fiſh's motion are, the fins, which in ſome fiſh are more numerous than in others. The fiſh, in a ſtate of repoſe, ſpreads all its fins, and ſeems to reſt upon its pectoral * and ventral † fins near the bottom. If the fiſh fold up the right pectoral fin, the fiſh inclines to the right ſide; if it fold the left fin, it inclines to that ſide. When the fiſh deſires to have a retrograde motion; ſtriking with the pectoral fins, in a contrary direction, effectually produces it. If the fiſh deſires to turn, a blow from the tail ſends it about; but if the tail ſtrikes both ways, then the motion is progreſſive. In purſuance of theſe obſervations, if the dorſal ‡ and ventral fins be cut off, the fiſh reels to the right and left, and endeavours to ſupply its loſs by keeping the reſt of its fins in conſtant employment. If the right pectoral fin be cut off, the fiſh leans to that ſide; if the ventral fin on the ſame ſide be cut away, then it loſes its equilibrium entirely. When the tail is cut off, the fiſh loſes all motion, and becomes the ſport of the water.

The ſenſes of fiſhes are remarkably imperfect, and, indeed, that of ſight is almoſt the only one which, in general, they may be ſaid to poſſeſs. But this is, in ſome degree, compenſated by their aſtoniſhing longevity, ſeveral ſpecies being known to live for more than an hundred years. Their longevity is ſtill exceeded by their ſingular fecundity: a cod, for inſtance, produces at a birth, above nine milions. The flounder produces at once above a million, and the mackarel five hundred thouſand.

The ſpawn continues in its egg ſtate in ſome fiſhes longer than in others, and this generally in proportion to their ſize. The young of the ſalmon continues in egg from December to April: the carp, three weeks, and the little gold-fiſh, from China, is produced ſtill quicker. The young ſpawn are the prey of all the inhabitants of the water, and ſcarcely one in a thouſand eſcapes.

Such is the general picture of theſe heedleſs and hungry creatures. There are ſome however, in this claſs, living in the waters, that are poſſeſſed of finer organs and higher ſenſations; that have all the tenderneſs of birds or quadrupeds for their young; that nurſe them with conſtant care, and protect them from every injury. Of this claſs are the *Cetaceous* tribe, or the fiſhes of the whale kind. There are others, though not capable of nurſing their young, that bring them alive into the world, and defend them with courage and activity. Theſe are the *Cartilaginous* kinds, or thoſe which have griſtles inſtead of bones. But the

* Thoſe near the gills. † The belly fins. ‡ Back fins.

the regardleſs tribe we have been deſcribing, that leave their ſpawn without any protection, are called the *Spinous* or bony kinds, from their bones reſembling the ſharpneſs of thorns.

Of Cetaceous Fiſhes.

This tribe is compoſed of the *Whale* and its varieties, of the *Cachalot*, the *Dolphin*, the *Grampus*, and the *Porpeſſe*. All theſe reſemble quadrupeds in their internal ſtructure, and in ſome of their appetites and affections. Like quadrupeds, they have lungs, a midriff, a ſtomach, inteſtines, liver, ſpleen, bladder, and organs of generation. Their heart alſo reſembles that of quadrupeds, with its partitions cloſed up as in them, and driving red and warm blood in circulation through the body. And to keep theſe parts warm, the whole kind are alſo covered between the ſkin and the muſcles with a thick coat of fat or blubber.

As theſe animals breathe the air, it is obvious that they cannot bear to be long under water. They are conſtrained, therefore, every two or three minutes, to come up to the ſurface to take breath, as well as to ſpout out through their noſtril, for they have but one, that water which they ſucked in while gaping for their prey.

But it is in the circumſtances in which they continue their kind, that theſe animals ſhew an eminent ſuperiority. Other fiſh depoſit their ſpawn, and leave the ſucceſs to accident. Theſe never produce above one young, or two at the moſt; and this the female ſuckles entirely in the manner of quadrupeds, her breaſts being placed, as in the human kind, above the navel. Their tails alſo are different from thoſe of all other fiſh. They are placed ſo as to lie flat on the ſurface of the water; while the other kinds have them, as we every day ſee, erect or edgeways. This flat poſition of the tail enables them to force themſelves ſuddenly to the ſurface of the water to breathe, which they are continually obliged to do.

The Whale.

Of the whale, properly ſo called, there are no leſs than ſeven different kinds; all diſtinguiſhed from each other by their external figure, or internal conformation. The Great Greenland Whale, without a back-fin, and black on the back; the Iceland Whale, without a back-fin, and whitiſh on the back; the New England Whale, with a hump on the back; the Whale with ſix humps on the back; the Fin-fiſh, with a fin on the back near the tail; the Pike-headed Whale, and the Round-lipped Whale. All theſe differ from each other in figure, as their names obviouſly imply. They differ alſo ſomewhat in their manner of living; the fin-fiſh having a larger ſwallow than the reſt; being more active, ſlender, and fierce, and living chiefly upon herrings.

The Great Greenland Whale is the fiſh ſo eagerly ſought after. It is a large heavy animal, and the head alone makes a third of its bulk. It is uſually found from ſixty to ſeventy feet long. The fins on each ſide are from five to eight feet, compoſed of bones and muſcles, and ſufficiently ſtrong to give the great maſs of body which they move, ſpeed, and activity. The tail is about twenty-four feet broad; and, when the fiſh lies on one ſide, its blow is tremendous. The ſkin is ſmooth and black, and, in ſome places, marbled with white and yellow; which, running over the ſurface, has a very beautiful effect.

The outward or ſcarf ſkin of the whale is no thicker than parchment; but this removed, the real ſkin appears, of about an inch thick, and

covering

covering the fat or blubber that lies beneath. This is from eight to twelve inches thick; and is, when the fiſh is ſound, of a beautiful yellow. The muſcles lie beneath; and theſe, like the fleſh of quadrupeds, are very red and tough.

The cleft of the mouth is above twenty feet long, which is near one third of the animal's whole length; and the upper jaw is furniſhed with barbs, that lie, like the pipes of an organ, the greateſt in the middle, and the ſmalleſt on the ſides. This is the whale-bone, of which the longeſt ſpars are about eighteen feet. The tongue is almoſt immoveably fixed to the under jaw, having the appearance of one great lump of fat; and, indeed, it fills ſeveral hogſheads with blubber. The eyes are not larger than thoſe of an ox; and when the chryſtalline humour is dried, it does not appear larger than a pea. They are placed towards the back of the head, being the moſt convenient ſituation for enabling them to ſee both before and behind. They are guarded by eye-lids and eye-laſhes, as in quadrupeds; and they ſeem to be very piercing.

Nor is their ſenſe of hearing in leſs perfection; for they are warned, at great diſtances, of any danger preparing againſt them. We have already obſerved, that the ſubſtance, called whale-bone, is taken from the upper jaw of the animal, and is very different from the real bones of the whale. The real bones are hard, like thoſe of great land animals, and are both very porous, and filled with marrow. Two great ſtrong bones ſuſtain the under lip, lying againſt each other in the ſhape of an half-moon. Some of theſe are twenty feet long: they are ſeen in ſeveral gardens ſet-up againſt each other, and are uſually miſtaken for the ribs.

The fidelity of theſe animals to each other exceeds even the conſtancy of birds. Some fiſhers, as Anderſon informs us, having ſtruck one of two whales, a male and female, that were in company together, the wounded fiſh made a long and terrible reſiſtance. It ſtruck down a boat with three men in it, with a ſingle blow of the tail, by which all went to the bottom. The other ſtill attended its companion, and lent it every aſſiſtance; till, at laſt, the fiſh that was ſtruck, ſunk under the number of its wounds. Its faithful aſſociate, in the mean time, diſdaining to ſurvive its ill fated companion, with great bellowing, ſtretched itſelf upon the dead fiſh, and ſhared its fate.

The whale goes with young nine or ten months, and is then fatter than uſual, particularly when near the time of bringing forth. The young continue at the breaſt for a year; during which time they are called by the ſailors *ſhort-heads*. They are then extremely fat, and yield above fifty barrels of blubber each. The mother, at the ſame time, is equally lean and emaciated. At the age of two years they are called *ſtunts*, as they do not thrive much immediately after quitting the breaſt: they then yield ſcarce above twenty, or twenty-four, barrels of blubber: from that time forward they are called *ſkull-fiſh*, and their age is wholly unknown. The food of the whale is a ſmall inſect, which is ſeen floating in thoſe ſeas, and which Linnæus terms the Meduſa. Theſe inſects are black, and of the ſize of a ſmall bean, and are ſometimes ſeen floating in cluſters on the ſurface of the water. They are of a round form, like ſnails in a box, but they have wings, which are ſo tender that it is ſcarce poſſible to touch them without breaking.

Theſe, however, ſerve rather for ſwimming than flying. They have the taſte of raw muſcles, and have the ſmell of burnt ſugar. Inoffenſive as the whale is, it is not without enemies. There is a ſmall animal, of the ſhell-fiſh kind, called the Whale louſe, that ſticks to its body, as we ſee ſhells ſticking to the foul bottom of a ſhip. This inſinuates itſelf chiefly under the fins; and whatever efforts the great animal makes, it ſtill keeps its hold, and lives upon the fat, which it is provided with inſtruments to arrive at.

The ſword-fiſh, however, is the whale's moſt terrible enemy. "At the ſight of this little animal," ſays Anderſon, "the whale ſeems agitated in an extraordinary manner; bounding from the water as if in conſternation. Wherever it appears, the whale perceives it at a diſtance, and flies from it in the oppoſite direction. I have been myſelf," continues he, "a ſpectator of their terrible encounter. The whale has no inſtrument of defence except the tail; with that it endeavours to ſtrike the enemy; and a ſingle blow taking place, would effectually deſtroy its adverſary. The ſword-fiſh, on the other hand, is as active as the other is ſtrong, and eaſily avoids the ſtroke; then bounding into the air, it falls upon its enemy, and endeavours not to pierce with its pointed beak, but to cut with its toothed edges. The ſea all around is ſoon dyed with blood, from the wounds of the whale; while the enormous animal vainly endeavours to reach its invader, and ſtrikes with its tail againſt the ſurface of the water, making a report at each blow louder than the noiſe of a cannon."

There is ſtill another and more powerful enemy called, by the fiſhermen of New England, the killer. This is itſelf a cetaceous animal, armed with ſtrong and powerful teeth. A number of theſe are ſaid to ſurround the whale, in the ſame manner as dogs get round a bull. Some attack it with their teeth behind; others attempt it before; until, at laſt, the enormous animal is torn down, and its tongue is ſaid to be the only part they devour when they have made it their prey. They are ſaid to be of ſuch great ſtrength, that one of them alone was known to ſtop a dead whale that ſeveral boats were towing along, and drag it from among them to the bottom.

But of all the enemies of theſe enormous fiſhes, man is the greateſt. He alone deſtroys more in a year than the reſt in an age, and actually has thinned their numbers in that part of the world where they are chiefly ſought. For the purpoſe of whale fiſhing a number of large veſſels are fitted out annually from different parts of Europe, and are ſtored with ſix months proviſion. When arrived at the part where the whales are expected to paſs to the ſouthward, they always keep their ſails ſet, and a ſailor is placed at the maſt head, to give information when he ſpies a whale. As ſoon as he diſcovers one, all hands are at work: they fit out their boats, and row to where the whale was ſeen. The harpooner, who is to ſtrike the fiſh, ſtands at the prow of the boat, with an harpoon or javelin in his hand, five or ſix feet long, pointed with ſteel like the barb of an arrow, of a triangular ſhape. As this perſon's place is that of the greateſt dexterity, it is alſo that of the greateſt danger. The whale ſometimes overturns the boat with a blow of its tail, and ſometimes drives againſt it with fury. In general, however, the animal ſeems to ſleep on the ſurface of the water; while the boat is approaching, the harpooner ſtands aloft, and, with his harpoon

poon tied to a cord of ſeveral hundred fathom length, darts it into the animal, and then rows off as faſt as poſſible. It is ſome time before the whale ſeems to feel the blow. The inſtrument has uſually pierced no deeper than the fat, and that being inſenſible, the animal continues for a while motionleſs; but ſoon rouſed from its ſeeming lethargy, as the ſhaft continues to pierce deeper and deeper into the muſcular fleſh, it flies of with amazing rapidity. In the mean time, the harpooon ſticks in its ſide; while the rope, which is coiled up in the boat, and runs upon a ſwivel, lengthens as the whale recedes, but ſtill ſhews the part of the deep to which it has retreated. The cord is coiled up with great care; for ſuch is the rapidity with which it runs off, that if it was but the leaſt checked, as it yields with the animal's retreat, it would infallibly overſet the boat. It ſometimes happens alſo, that the rapidity with which it runs over the ſwivel at the edge of the boat, heats it, and it would take fire, did not a man ſtand continually with a wet mop in his hand, to cool the ſwivel as the cord runs. The whale having dived to a conſiderable depth, remains at the bottom, ſometimes for near half an hour, with the harpoon in its body, and then riſes to take breath, expecting that the danger is paſt. But the inſtant it appears, they are all with their boats ready to receive it, and to dart their harpoons into its body: the animal again dives and again riſes, while they repeat their blows. The ſhip follows in full ſail, like all the reſt, never loſing ſight of the boats, and ready to lend them aſſiſtance. In the mean time, the whole ocean ſeems dyed in blood. Thus they renew their attack, till the whale begins to be quite enfeebled and ſpent, when they plunge their longer ſpears, into various parts of its body, and the enormous animal expires. When it is dead, to prevent it from ſinking, they tie it with a ſtrong iron chain to the ſide of the boat, and either cut it up in pieces, and carry it home in that manner, or extract the oil from the blubber on ſhip-board.

The fleſh of this animal is a dainty to ſome nations; and the ſavages of Greenland, as well as thoſe near the ſouth pole, are fond of it to diſtraction. They eat the fleſh, and drink the oil, which is a firſt-rate delicacy. The finding a dead whale is an adventure conſidered among the fortunate circumſtances of their wretched lives. They make their abode beſide it; and ſeldom remove till they have left nothing but the bones.

Jacobſon tells us that his countrymen of the iſland of Feroe, are very fond of ſalted whale's fleſh. The fat of the head they ſeaſon with bay ſalt, and then hang it up to dry in the chimney. He thinks it taſtes as well as fat bacon; and the lean, which they boil, is, in his opinion, not inferior to beef. I fancy poor Jacobſon would make but an indifferent taſter at one of our city feaſts!

The Narwhal.

The narwhal, or ſea-unicorn is neither ſo large nor ſo fat as the whale. But this great animal is ſufficiently diſtinguiſhed from all others of the deep by its tooth or teeth, which point directly forward from the upper jaw, and are from nine to fourteen feet long. In all the variety of weapons with which Nature has armed her various tribes, there is not one ſo large or ſo formidable as this. This terrible weapon is generally found ſingle; and ſome are of opinion that the animal is furniſhed with but one by nature; but there is at preſent the ſkull of a narwhal

at the Stadhouſe at Amſterdam with two teeth. The tooth, or, as ſome are pleaſed to call it, the horn of the narwhal, is as ſtraight as an arrow, about the thickneſs of the ſmall of a man's leg, wreathed in the manner we ſometimes ſee twiſted bars of iron. It tapers to a ſharp point; and is whiter, heavier, and harder than ivory. It ſeems to ſpring from the left ſide of the head directly forward in a ſtraight line with the body; and its root enters into the ſocket above a foot and an half. Notwithſtanding its appointments for combat, theſe long and pointed tuſks, amazing ſtrength, and unmatchable celerity, the narwhal is one of the moſt harmleſs inhabitants of the ocean. It is ſeen conſtantly and inoffenſively ſporting among the other great monſters of the deep, no way attempting to injure them, but pleaſed in their company. The Greenlanders call the narwhal the fore-runner of the whale; for wherever it is, the whale is ſure to follow. This may ariſe as well from the natural paſſion for ſociety in theſe animals, as from both living upon the ſame food, which are the inſects we have already taken notice of. Theſe powerful fiſhes make war upon no other living creature; and, though furniſhed with inſtruments to ſpread general deſtruction, are as innocent and as peaceful as a drove of oxen. The narwhal is much ſwifter than the whale, and would never be taken by the fiſherman but for thoſe very tuſks, which at firſt appear to be its principal defence. Theſe animals, are always ſeen in herds, and whenever they are attacked, they crowd together in ſuch a manner, that they are mutually embarraſſed by their tuſks. By theſe they are often locked together, and are prevented from ſinking to the bottom. It ſeldom happens, therefore, but the fiſhermen make ſure of one or two of the hindmoſt, which very well reward them for their pains.

The Cachalot.

The Cachalot, or generally known by the name of the Spermaceti Whale, has ſeveral teeth in the under jaw, but none in the upper. As there are no leſs than ſeven diſtinctions among whales, ſo alſo there are the ſame number of diſtinctions in the tribe we are deſcribing. This tribe is not of ſuch enormous ſize as the whale, properly ſo called, not being above ſixty feet long and ſixteen feet high. In conſequence of their being ſlenderer, they are much more active than the common whale; they remain a longer time at the bottom, and afford a ſmaller quantity of oil. As in the common whale the head makes a third part of its bulk, ſo in this ſpecies the head makes one half of the whole. The cachalot is as deſtructive among leſſer fiſhes as the whale is harmleſs; and can at one gulp ſwallow a ſhoal of fiſhes down its enormous gullet. Linnæus tells us that this fiſh purſues and terrifies the dolphins and porpeſſes and often drives them on ſhore.

But, how formidable ſoever this fiſh may be to its fellows of the deep, it is by far the moſt valuable, as it contains two very precious drugs, ſpermaceti and ambergriſe. Indeed the whole oil of the fiſh is very eaſily convertible into ſpermaceti. This is performed by boiling it with a lea of pot-aſh, and hardening it in the manner of ſoap. Candles are now made of it, which are ſubſtituted for wax, and ſold much cheaper.

Reſpecting the ambergriſe which is ſometimes found in this whale, it was long conſidered as a ſubſtance found floating on the ſurface of the ſea; but time, that reveals the ſecrets of the mercenary, has diſcovered

covered that it chiefly belongs to this animal. The name, which has been improperly given to the former ſubſtance, ſeems more juſtly to belong to this; for the ambergriſe is found in the place where the ſeminal veſſels are uſually ſituated in other animals. It is found in a bag of three or four feet long, in round lumps, from one to twenty pounds weight, floating in a fluid ſomewhat thinner than oil, and of a yellowiſh colour. There are never ſeen more than four at a time in one of theſe bags; and that which weighed twenty pounds, and which was the largeſt ever ſeen, was found ſingle. Theſe balls of ambergriſe are not found in all fiſhes of this kind, but are chiefly to be met with in the oldeſt and ſtrongeſt. The uſes of this medicine for the purpoſes of luxury and as a perfume are well known; though upon ſome ſubjects ignorance is preferable to information.

The Dolphin, the Grampus, and the Porpeſſe.

All theſe fiſh have teeth both in the upper and lower jaw, and are much leſs than the whale. The grampus, which is the largeſt, never exceeds twenty feet. It may alſo be diſtinguiſhed by the flatneſs of its head, which reſembles a boat turned upſide down. The porpeſſe reſembles the grampus in moſt things, but it is ſeldom above eight feet long: its ſnout too is rather like that of an hog. The dolphin has a ſtrong reſemblance to the porpeſſe, except that its ſnout is longer and more pointed. They have all fins on the back: they all have heads very large, like the reſt of the whale kind; and reſemble each other in their appetites, their manners, and conformations; being equally voracious, active, and roving.

The great agility of theſe animals makes it very difficult to take them. They ſeldom remain a moment above water; ſometimes, indeed, their too eager purſuits expoſe them to danger; and a ſhoal of herrings often allures them out of their depth. In ſuch a caſe, the hungry animal continues to flounder in the ſhallows till knocked on the head, or till the retiring tide affords it relief. But all this tribe, and the dolphin in particular, are not leſs ſwift than deſtructive. No fiſh could eſcape them, but from the awkward poſition of the mouth, which is placed in a manner under the head. Yet, even with theſe diſadvantages, their depredations are ſo great, that they have been juſtly ſtiled the plunderers of the deep.

We are told, that theſe animals go with young ten months; that, like the whale, they ſeldom bring forth above one at a time, and that in the midſt of ſummer. They are ſaid to live to a conſiderable age though ſome reſtrict it to about thirty years: and they ſleep with the ſnout above water.

CHAP.

CHAP. XXX.

OF CARTILAGINOUS FISHES IN GENERAL—OF THE SHARK SPECIES—OF THE RAY DO.—THE SKATE—THE THORNBACK—MANNER OF FISHING FOR THEM—THE ROUGH RAY—THE FIRE-FLARE—THE TORPEDO—THE LAMPREY—THE STURGEON—THE ISINGLASS-FISH—THE SUN-FISH—THE FISHING FROG—THE LUMP-FISH—THE SEA-SNAIL—THE PIPE-FISH—THE HIPPOCAMPUS—THE SEA-ORB—THE SEA-HEDGE-HOG—THE GALLEY-FISH.

WE have ſeen the fiſhes of the cetaceous kind bear a ſtrong reſemblance to quadrupeds in their conformation; thoſe of the cartilaginous kinds are one remove ſeparated from them: they form the ſhade that completes the imperceptible gradations of Nature.

The firſt great diſtinction which the cartilaginous tribe of fiſhes exhibit is, their having cartilages or griſtles inſtead of bones. The ſize of all fiſhes increaſes with age; but from the pliancy of the bones in this tribe, they ſeem to have no bounds ſet to their dimenſions: and it is ſuppoſed that they grow larger every day till they die.

In the conformation of Cartilaginous fiſhes the principal properties of both the other claſſes are united. Like the cetaceous tribes, they have organs of hearing, and lungs: like the ſpinous kinds, they have gills, and an heart without a diviſion.

From this ſtructure of their gills, they are enabled to live a longer time out of water than other fiſhes. The cartilaginous ſhark, or ray, live ſome hours after they are taken; while the ſpinous herring or mackarel expire a few minutes after they are brought on ſhore. Some of this claſs bring forth their young alive; and ſome produce eggs, which are afterwards brought to maturity. In all, however, the manner of geſtation is nearly the ſame; for upon diſſection, it is always found, that the young, continue in the egg till a very little time before they leave the womb. Theſe eggs therefore, they may properly be ſaid to hatch within their body; and as ſoon as their young quit the ſhell, they begin to quit the womb alſo.

Of the Shark Kind.

Of all the inhabitants of the deep, thoſe of the ſhark kind are the fierceſt and the moſt voracious. The ſmalleſt of this tribe is not leſs dreaded by greater fiſh, than many that to appearance ſeem more powerful; nor do any of them ſeem fearful of attacking animals far above their ſize: but the Great White Shark, which is the largeſt of the kind, joins to the moſt amazing rapidity, the ſtrongeſt appetites for miſchief: as he approaches nearly in ſize to the whale, he far ſurpaſſes him in ſtrength and celerity, in the formidable arrangement of his teeth, and his inſatiable deſire of plunder.

The white Shark.

The white Shark is ſometimes ſeen to rank even among whales for magnitude; and is found from twenty to thirty feet long. Some aſſert that they have ſeen them of four thouſand pound weight; and we are told particularly of one, that had a human corpſe in its belly. The head large, and ſomewhat flatted; the ſnout long, and the eyes large. The mouth is enormouſly wide; as is the throat, and capable of ſwallowing

a man with great eaſe. But its furniture of teeth is ſtill more terrible. Of theſe there are ſix rows, extremely hard, ſharp-pointed, and of a wedge-like figure. It is aſſerted that there are ſeventy-two in each jaw, which make one hundred and forty-four in the whole; yet others think that their number is uncertain; and that, in proportion as the animal grows older, theſe terrible inſtruments of deſtruction are found to increaſe. With theſe the jaws both above and below are repeated; but the animal has a power of erecting or depreſſing them at pleaſure. When the ſhark is at reſt, they lie quite flat in his mouth; but when he prepares to ſeize his prey, he erects all this dreadful apparatus, by the help of a ſet of muſcles that join them to the jaw. And the animal he ſeizes, dies, pierced with a hundred wounds in a moment.

Nor is the fiſh leſs terrible with reſpect to the reſt of his form: his fins are larger, in proportion; and he is furniſhed with great goggle eyes, that he turns with eaſe on every ſide, ſo as to ſee his prey behind him as well as before. His whole aſpect too is marked with a character of malignity: his ſkin alſo is rough, hard and prickly; being that ſubſtance which covers inſtrument caſes, called ſhagreen.

As the ſhark is thus formidable in his appearance, ſo is he alſo dreadful, from his courage and activity. No fiſh can ſwim ſo faſt as the ſhark, he outſtrips the ſwifteſt ſhips. Such amazing powers, with ſuch great appetites for deſtruction, could quickly unpeople even the ocean, but providentially the ſhark's upper jaw projects ſo far above the lower, that he is obliged to turn on one ſide (not on his back, as is generally ſuppoſed) to ſeize his prey. As this operation requires ſome time, the animal purſued ſeizes that opportunity to make its eſcape.

Still, however, the depredations he commits are frequent and formidable. The ſhark is the dread of ſailors in all hot climates; where, like a greedy robber, he attends the ſhips, in expectation of what may drop over board. A man who unfortunately falls into the ſea at ſuch a time, is ſure to periſh. A ſailor that was bathing in the Mediterranean, near Antibes, in the year 1744, while he was ſwimming about fifty yards from the ſhip, perceived a monſtrous fiſh making towards him and ſurveying him on every ſide, as fiſh are often ſeen to look round a bait. The poor man, ſtruck with terror at its approach cried out to his companions in the veſſel to take him on board. They accordingly threw him a rope with the utmoſt expedition, and were drawing him up by the ſhip's ſide, when the ſhark darted after him from the deep, and ſnapped off his leg.

Mr Pennant tells us, that the maſter of a Guinea-ſhip, finding a rage for ſuicide prevail among his ſlaves, from a notion the unhappy creatures had, that after death they ſhould be reſtored again to their families, friends and country. To convince them at leaſt that ſome diſgrace ſhould attend them here, he ordered one of their dead bodies to be tied by the heels to a rope, and ſo let down into the ſea; and though it was drawn up again with great ſwiftneſs, yet, in that ſhort ſpace, the ſhark had bitten off all but the feet. A Guinea captain was, by ſtreſs of weather, driven into the harbour of Belfaſt, with a lading of very ſickly ſlaves, who, in the manner above-mentioned, took every opportunity to throw themſelves over board when brought upon deck, as is uſual, for the benefit of the freſh air. The captain perceiving, among others, a woman ſlave attempting to drown herſelf, pitched upon her

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as a proper example to the reſt. As he ſuppoſed that they did not know the terrors attending death, he ordered the woman to be tied with a rope under the arm-pits, and ſo let her down into the water. When the poor creature was plunged in, and about half way down, ſhe was heard to give a terrible ſhriek, which at firſt was aſcribed to her fears of drowning; but ſoon after the water appearing red all round her, ſhe was drawn up, and it was found that a ſhark, which had followed the ſhip had bit her off from the middle.

The common method by which our ſailors take the ſhark, is to bait a great hook with a piece of beef or pork, which is thrown out into the ſea by a ſtrong cord, ſtrengthened near the hook with an iron chain, Without this precaution, the ſhark would quickly bite the cord in two, and make off. It is no unpleaſant amuſement to obſerve this voracious animal coming up to ſurvey the bait, particularly when not preſſed by hunger. He approaches it, examines it, ſwims round it, ſeems for a while to neglect it, perhaps apprehenſive of the cord and the chain. He quits it for a little; but his appetite preſſing, he returns again; appears preparing to devour it, but quits it once more. When the ſailors have ſufficiently diverted themſelves with his different evolutions, they then make a pretence, by drawing the rope, as if about to take the bait away. It is then that the glutton's hunger excites him; he darts at the bait, and ſwallows it, hook and all. Sometimes, however, he does not ſo entirely gorge the whole, but that he once more gets off; yet even then, though wounded and bleeding with the hook, he will again purſue the bait until he is taken. When he finds the hook lodged in his maw, his utmoſt efforts are then excited, but in vain to get free: he tries with his teeth to cut the chain: he pulls with all his force to break the line: he almoſt ſeems to turn his ſtomach inſide out, to diſgorge the hook: in this manner he continues his formidable though fruitleſs efforts. At laſt, however, being quite ſpent, he ſuffers his head to be drawn above water, and the ſailors confining his tail by a nooſe, in this manner draw him on ſhip board, and diſpatch him. This is done by beating him on the head till he dies; yet even this is not effected without difficulty and danger. The enormous creature, terrible even in the agonies of death, ſtill ſtruggles with his deſtroyers; nor is there an animal in the world that it is more difficult to kill. Even when cut in pieces, the muſcles ſtill preſerve their motion, and vibrate for ſome minutes after being ſeparated from the body. Another method of taking him, is by ſtriking a barbed inſtrument, called a fizgig, into his body, as he bruſhes along by the ſide of the ſhip. As ſoon as he is taken up, to prevent his flouncing, they cut off the tail with an ax, with the utmoſt expedition.

This is the manner in which Europeans deſtroy the ſhark; but ſome of the negroes along the African coaſt, take a bolder and more dangerous method to combat their terrible enemy. Armed with nothing but a knife, the negroe plunges into the water, where he ſees the ſhark watching for his prey, and boldly ſwims forward to meet him. Notwithſtanding this, the voracious animal ſuffers the man to approach him, but juſt as he turns upon his ſide to ſeize the agreſſor, the negroe watches the opportunity, plunges his knife in the fiſh's belly, and purſues his blows with ſucceſs, that he entirely vanquiſhes the ravenous

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tyrant. Upon this, he fixes the fiſh's head in a nooſe, and drags him to ſhore, where he makes a noble feaſt for the adjacent villages.

Nor is man alone the only enemy this fiſh has to fear: the remora, or ſucking fiſh, is probably a ſtill greater, and follows the ſhark every where. This fiſh has got a power of adhering to whatever it ſticks againſt, in the ſame manner as a cupping-glaſs ſticks to the human body. It is by ſuch an apparatus that this animal ſticks to the ſhark, drains away its moiſture.

Upon the whole, a ſhark, when living, is a very formidable animal; and, when dead, is of very little value. The fleſh is hardly digeſtible by any but the Negroes, who are fond of it to diſtraction; the liver affords three or four quarts of oil; ſome imaginary virtues have been aſcribed to the brain; and its ſkin is, by great labour, poliſhed into that ſubſtance called ſhagreen. Mr Pennant is of opinion, that the female is larger than the male in all this tribe; which would, if confirmed by experience, make a ſtriking agreement between them and birds of prey. It were to be wiſhed that ſucceeding hiſtorians would examine into this obſervation, which is offered only as a conjecture!

Cartilaginous Fiſhes of the Ray Species.

All the fiſhes of this kind reſemble each other very ſtrongly in their figure; nor is it eaſy to diſtinguiſh one from another. The ſtranger to this dangerous tribe may imagine he is only handling a ſkate when he is inſtantly ſtruck numb by the torpedo; and he may ſuppoſe he has caught a thornback till he is ſtung by the fire-flare.

By the ſpines only theſe animals are diſtinguiſhed from each other. The ſkate has the middle of the back rough, and a ſingle row of ſpines on the tail. The ſharp noſed ray has ten ſpines that are ſituated towards the middle of the back. The rough ray has its ſpines ſpread indiſcriminately over the whole back. The thorn-back has its ſpines diſpoſed in three rows on the back. The fire-flare has but one ſpine, but that indeed a terrible one. This dangerous weapon is placed on the tail, about four inches from the body, and is not leſs than five inches long. It is of a flinty hardneſs, the ſides thin, ſharp pointed, and cloſely and ſharply bearded the whole way. The laſt of this tribe that I ſhall mention is the torpedo; and this animal has no ſpines that can wound; but in the place of them it is poſſeſſed of one of the moſt extraordinary faculties in nature.

Such are the principal differences that may enable us to diſtinguiſh animals, ſome of which are of very great uſe to mankind, from others that are terrible and noxious. With reſpect to their uſes indeed, as we ſhall ſoon ſee, they differ much; but the ſimilitude among them, as to their nature, appetites, and conformation, is perfect and entire. They are all as voracious as they are plenty; and as dangerous to a ſtranger as uſeful to him who can diſtinguiſh their differences.

Of all the larger fiſh of the ſea, theſe are the moſt numerous; and they owe their numbers to their ſize. Except the white ſhark and cachalot alone, there is no other fiſh that has a ſwallow large enough to take them in; and their ſpines make them a ſtill more dangerous morſel. Yet the ſize of ſome is ſuch, that even the ſhark himſelf is unable to devour them. We have ſeen ſome of them in England weigh above two hundred pounds; but that is nothing to their enormous bulk in other parts of the world. Labat tells us of a prodigious ray that was ſpear-

ed by the negroes at Guadaloupe, which was thirteen feet eight inches broad, and above ten feet from the ſnout to the inſertion of the tail. The tail itſelf was in proportion, for it was no leſs than fifteen feet long; twenty inches broad at its inſertion, and tapering to a point. The body was two feet deep. The ſkin was as thick as leather, and marked with ſpots, which ſpots in all of this kind, are only glands, that ſupply a mucus to lubricate and ſoften the ſkin. This enormous fiſh was quite uſeleſs to the Europeans; but the negroes choſe out ſome of the niceſt bits, and carefully ſalted them up as a moſt favourite proviſion.

It is chiefly during the winter ſeaſon that our fiſhermen fiſh for the ray; but the Dutch, who are indefatigable, begin their operations earlier, and fiſh with better ſucceſs than we do. The method practiſed by the fiſhermen of Scarborough is thought to be the beſt among the Engliſh; and, as Mr Pennant has given a very ſuccinct account of it, I will take leave to preſent it to the reader.

"When they go out to fiſh, each perſon is provided with three lines. Each man's lines are fairly coiled upon a flat oblong piece of wicker work; the hooks being baited and placed very regularly in the centre of the coil. Every line is furniſhed with two hundred and eighty hooks, at the diſtance of ſix feet two inches from each other. The hooks are faſtened to lines of twiſted horſe-hair, twenty-ſeven inches long. The line is laid acroſs the current, and always remains upon the ground about ſix hours.

"The beſt bait for all kinds of fiſh, is freſh herring cut in pieces of a proper ſize. Next to herrings are the leſſer lampreys, which come all winter by land-carriage from Tadcaſter. The next baits in eſteem are ſmall haddocks cut in pieces, ſand-worms, muſcles, and limpets: and laſtly, when none of theſe can be found, they uſe bullock's liver. The hooks uſed there are much ſmaller than thoſe employed at Iceland and Newfoundland; and are only two inches and an half long in the ſhank. The line is made of ſmall tanned cording, and is about thirteen miles long."

But this extent of line, is nothing to what the Italians throw out in the Mediterranean. Their fiſhing is carried on in a tartan, which is a veſſel much larger than ours; and they bait a line of no leſs than twenty miles long, with above ten or twelve thouſand hooks. This line is not regularly drawn every ſix hours, as with us, but remains ſome time in the ſea; and it requires the ſpace of twenty-four hours to take it up. By this apparatus they take rays, ſharks, and other fiſh; ſome of which are above a thouſand pounds weight. When they have caught any of this ſize, they ſtrike them through with an harpoon to bring them on board, and kill them as faſt as they can.

This method of catching fiſh is both fatiguing and dangerous; but the value of the prize generally repays the pain. The ſkate and the thornback are very good food; and their ſize, which is from ten pounds to two hundred weight, very well rewards the trouble of fiſhing them. But it ſometimes happens that the lines are viſited by very unwelcome intruders; by the rough ray, the fire-flare, or the torpedo.

The rough ray inflicts but ſlight wounds with the prickles with which its whole body is furniſhed. To the ignorant it ſeems harmleſs, and a man would at firſt ſight venture to take it in his hand, without any apprehenſion. He ſoon, however, finds, that there is not a ſingle part of

of its body that is not armed with ſpines; and that there is no way of ſeizing the animal, but by the little fin at the end of the tail.

But this animal is harmleſs, when compared to the fire flare, which ſeems to be the dread of even the boldeſt and moſt experienced fiſhermen. The ſpine, with which this animal wounds its adverſaries, is not venomous, as has been vulgarly ſuppoſed. In fact, it is a weapon of offence belonging to this animal, and capable, from its barbs, of inflicting a very terrible wound, attended with dangerous ſymptoms. It is fixed to the tail, as a quill is into the tail of a fowl, and is annually ſhed in the ſame manner.

The Torpedo.

The torpedo is an animal of this kind, equally formidable and well known with the former; but the manner of its operating, ſtill remains a myſtery to mankind. The body of this fiſh is almoſt circular, and thicker than others of the ray kind. The ſkin is ſoft, ſmooth, and of a yellowiſh colour, marked, as all the kind, with large annular ſpots. The eyes are very ſmall: the tail tapers to a point; and the fiſh weighs from a quarter to fifteen pounds. Redi found one twenty-four pounds weight. To all outward appearance, it is furniſhed with no extraordinary powers. It has no muſcles formed for very great exertions; no internal conformation perceptibly differing from the reſt of its kind; yet ſuch is that unaccountable power it poſſeſſes, that the inſtant it is touched, it numbs not only the hand and arm, but ſometimes even the whole body. The ſhock received, by all accounts, moſt reſembles the ſtroke of an electrical machine; ſudden, tingling, and painful. "The inſtant," ſays Kempfer, "I touched it with my hand, I felt a terrible numbneſs in my arm, and as far up as the ſhoulder. Even if one treads upon it with his ſhoe, it affects not only the leg, but the whole thigh upwards. Thoſe who touch it with the foot, are ſeized with a ſtronger palpitation than even thoſe who touched it with the hand. This numbneſs bears no reſemblance to that which we feel when a nerve is a long time preſſed, and the foot is ſaid to be aſleep. It rather appears like a ſudden vapour, which paſſing through the pores in an inſtant, penetrates to the very ſprings of life, from whence it diffuſes itſelf over the whole body, and gives real pain. The nerves are ſo affected, that the perſon ſtruck imagines all the bones of his body, and particularly thoſe of the limb that received the blow, to be driven out of joint. All this is accompanied with an univerſal tremor, a ſickneſs of the ſtomach, a general convulſion, and a total ſuſpenſion of the faculties of the mind. In ſhort," continues Kempfer, "ſuch is the pain, that all the force of our promiſes and authority could not prevail upon a ſea-man to undergo the ſhock a ſecond time. A negroe indeed, that was ſtanding by, readily undertook to touch the torpedo, and was ſeen to handle it without feeling any of its effects. He informed us, that his whole ſecret conſiſted in keeping in his breath; and we found, upon trial, that this method anſwered with ourſelves. When we held in our breath, the torpedo was harmleſs; but when we breathed ever ſo little, its efficacy took place."

Although we are ſtrangers to the nature of the torpedo, yet we have ſome facts which relate to the manner of its acting. Reaumur, who made ſeveral experiments upon this animal, has at leaſt convinced the world that it is not neceſſarily, but by an effort, that the torpedo

numbs the hand of him that touches it. He tried ſeveral times, and could eaſily tell when the fiſh intended the ſtroke, and when it was about to continue harmleſs. Always before the fiſh intended the ſtroke, it flattened the back, raiſed the head and the tail; and then, by a violent contraction in the oppoſite direction, ſtruck with its back againſt the preſſing finger; and the body, which before was flat, became humped and round.

The moſt probable ſolution of this phenomenon is, that it depends upon electricity. When the fiſh is dead, the whole power is deſtroyed, and it may be handled or eaten with perfect ſecurity. It is now known that there are more fiſh than this of the ray kind, poſſeſſed of the numbing quality, which has acquired them the name of the torpedo. Theſe are deſcribed by Atkins and Moore, and abound in the coaſt of Africa. They are ſhaped like a mackarel, except that the head is much larger; and the effects of theſe ſeem to differ in ſome reſpects. M. Condamine alſo ſpeaks of a fiſh reſembling a lamprey, endued with ſimilar powers. This animal, if touched with the hand, or even a ſtick, inſtantly benumbs the hand and arm to the very ſhoulder.

The Lamprey.

There is a ſpecies of the lamprey ſerved up as a great delicacy among the modern Romans very different from ours. Whether their lamprey be the murena of the ancients I will not pretend to ſay; but there is nothing more certain than that our lamprey is not.

The lamprey known among us is differently eſtimated, according to the ſeaſon in which it is caught, or the place where it has been fed. Thoſe that leave the ſea to depoſit their ſpawn in freſh waters are the beſt. Thoſe on the contrary, that are entirely bred in our rivers, and that have never been at ſea, are conſidered as much inferior to the former. Thoſe that are taken in the months of March, April, or May, juſt upon their leaving the ſea, are reckoned very good. Thoſe again that are caught after they have caſt their ſpawn, are found to be flabby and of little value.

The lamprey in its general appearance, is very like an eel, but it is of a lighter colour, and rather of a clumſier make. It differs however, in the mouth, which is round, and placed rather obliquely below the end of the noſe. It reſembles the mouth of a leech more than that of an eel; and the animal has a hole on the top of the head, through which it ſpouts water, as in the cetaceous kind. There are ſeven holes on each ſide for reſpiration; and the fins are formed rather by a lengthening out of the ſkin, than by any ſet of bones or ſpines for that purpoſe. As its mouth is pretty like that of a leech, ſo like that animal it ſticks cloſe to, and ſucks any body. It is extraordinary the power they have of adhering to ſtones; which they do ſo firmly as not to be drawn off without conſiderable difficulty. We are told of one that weighed but three pounds; and yet it ſtuck ſo firmly to a ſtone of twelve pounds, that the ſtone remained ſuſpended at its mouth. With reſpect to the inteſtines of the lamprey, it ſeems to have but one great bowel, running from the mouth to the vent, narrow at both ends, and wide in the middle.

So ſimple a conformation ſeems to imply an equal ſimplicity of appetite. In fact, the lamprey's food is either ſlime and water, or ſuch ſmall water-inſects as are ſcarce perceivable. Perhaps its appetite may

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be more active at ſea, of which it is properly a native; but when it comes up into our rivers, it is hardly perceived to devour any thing.

Its uſual time of leaving the ſea, which it is annually ſeen to do in order to ſpawn, is about the beginning of ſpring; and after a ſtay of a few months it returns. Their preparation for ſpawning is peculiar; their manner is to make holes in the gravelly bottom of rivers; and on this occaſion their ſucking power is particularly ſerviceable; for if they meet with a ſtone of a conſiderable ſize, they will remove it. Their young are produced from eggs in the manner of flat fiſh: and the female continues with them till they come forth. She is ſometimes ſeen with her whole family playing about her; and after ſome time ſhe conducts them in triumph back to the ocean.

How much they were valued among the ancients, or a fiſh bearing ſome reſemblance to them, appears from all the claſſics that have praiſed good living or ridiculed gluttony. One ſtory we are told of this fiſh with which I will conclude its hiſtory. A ſenator of Rome, whoſe name does not deſerve being tranſmitted to poſterity, was famous for the delicacy of his lampreys. Tigelinus, Manucius, and all the celebrated epicures of Rome, were loud in his praiſes: no man's fiſh had ſuch a flavour, was ſo nicely fed, or ſo exactly pickled. Auguſtus, hearing ſo much of that man's entertainments, deſired to be his gueſt; and ſoon found that fame had been juſt to his merits; the man had indeed very fine lampreys, and of an exquiſite flavour. The emperor was deſirous of knowing the method by which he fed his fiſh to ſo fine a reliſh; and the glutton, making no ſecret of his art, informed him that his way was to throw into his ponds ſuch of his ſlaves as had at any time diſpleaſed him. Auguſtus, we are told, was not much pleaſed with his receipt; and inſtantly ordered all his ponds to be filled up. The ſtory would have ended better if he had ordered the owner to be flung in alſo.

The Sturgeon.

The Sturgeon in its general form reſembles a freſh-water pike. The noſe is long; the mouth is ſituated below, being ſmall, and without jaw-bones or teeth. But, though it is ſo harmleſs and ill provided for war, the body is formidable enough to appearance. It is long, pentagonal, and covered with five rows of large bony knobs, one row on the back, and two on each ſide, and a number of fins to give it greater expedition. Of this fiſh there are three kinds; the common ſturgeon, the caviar ſturgeon, and the huſo or iſinglaſs fiſh. The largeſt ſturgeon we have heard of caught in Great-Britain was a fiſh taken in the Eſke, which weighed four hundred and ſixty pounds. An enormous ſize to thoſe who have only ſeen our freſh water fiſhes!

As the ſturgeon is an harmleſs fiſh it is never caught by a bait in the ordinary manner of fiſhing, but always in nets. From the quality of floundering at the bottom it has received its name; which comes from the German verb *ſtoeren*, ſignifying to wallow in the mud. That it lives upon no large animals is obvious to all thoſe who cut it open, where nothing is found in its ſtomach but a kind of ſlimy ſubſtance, which has induced ſome to think that it lives only upon water and air.

The ſturgeon uſually comes up rivers to depoſit its ſpawn, about the beginning of ſummer, when the fiſhermen of all great rivers hold themſelves in readineſs for its reception. At Pillau particularly the ſhores

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are formed into diſtricts, and allotted to companies of fiſhermen, ſome of which are rented for about three hundred pounds a year. The nets in which the ſturgeon is caught, are made of ſmall cord, and placed acroſs the mouth of the river; but in ſuch a manner that, whether the tide ebbs or flows, the pouch of the net goes with the ſtream. The ſturgeon thus caught, while in the water, is one of the ſtrongeſt fiſhes that ſwims, and often breaks the net to pieces that incloſes it; but the inſtant it is raiſed with its head above water, all its activity is loſt. It is then a ſpiritleſs lump, and ſuffers itſelf to be tamely dragged on ſhore.

The fleſh of this animal pickled is very well known at all the tables of Europe; and is even more prized in England than in any of the countries where it is uſually caught. The fiſhermen have two different methods of preparing it. The one is by cutting it in long pieces lengthwiſe, and having ſalted them, by hanging them up in the ſun to dry. The fiſh thus prepared is ſold in all the countries of the Levant, and ſupplies the want of better proviſion. The other method, which is uſually practiſed in Holland, and along the ſhores of the Baltic, is to cut the ſturgeon croſswiſe into ſhort pieces, and put it into ſmall barrels, with a pickle made of ſalt and ſaumure. This is the ſturgeon which is ſold in England, and of which great quantities come from the North.

A very great trade is alſo carried on with the roe of the ſturgeon, preſerved in a particular manner, and called Caviar. It is made from the roe of all kinds of ſturgeon, but particularly the ſecond. This is much more in requeſt in other countries of Europe than with us. To all theſe high reliſhed meats, the appetite muſt be formed by degrees; and though formerly even in England it was very much prized at the politeſt tables, it is at preſent entirely neglected. It is ſtill, however, a conſiderable merchandize among the Turks, Greeks, and Venetians. Caviar ſomewhat reſembles ſoft ſoap in conſiſtence; but it is of a brown colour, and is eaten as cheeſe with bread.

The Huſo, or Iſinglaſs Fiſh.

The huſo, or iſinglaſs fiſh furniſhes a ſtill more valuable commodity. This fiſh is caught in great quantities in the Danube, from the months of October to January. It is ſeldom below fifty pounds weight, and often above four hundred. Its fleſh is ſoft, glutinous, and flabby; but it is ſometimes ſalted, which makes it better taſted, and then it becomes red like ſalmon. It is for the commodity it furniſhes that it is chiefly taken. The manner of making it is this. They take the ſkin, the entrails, the fins, and the tail of this fiſh, and cut them into ſmall pieces. Theſe are left to macerate in a ſufficient quantity of warm water, and they are all boiled ſhortly after with a ſlow fire, until they are diſolved and reduced to a jelly. This jelly is ſpread upon inſtruments made for the purpoſe, ſo, that whilſt it dries, it aſſumes the form of parchment, and, when quite dry, it is then rolled into the form in which we ſee it in the ſhops. This valuable commodity is principally furniſhed from Ruſſia, where they prepare great quantities ſurpriſingly cheap.

Above all others, the cartilaginous claſs exhibits a variety of ſhapeleſs beings, the deviations of which from the uſual form of fiſhes are beyond the power of words to deſcribe, and almoſt of the pencil to draw,

draw. In this claſs we have the *Pipe fiſh*, that almoſt tapers to a thread, and the *Sun fiſh*, that has the appearance of a bulky head, but the body cut off in the middle; the *Hippocampus*, with an head ſomewhat like that of an horſe, and the *Water Bat*, whoſe head can ſcarcely be diſtinguiſhed from the body. In this claſs we find the Fiſhing Frog, which from its deformity ſome have called the *Sea Devil*, the *Chimæra*, the *Lump Fiſh*, the *Sea Porcupine*, and the *Sea Snail*. Of all theſe the hiſtory is but little known; and naturaliſts ſupply the place with deſcription.

The Sun Fiſh.

The ſun fiſh ſometimes grows to a very large ſize. One taken near Plymouth was five hundred weight. In form it reſembles a bream, or ſome deep fiſh cut off in the middle: the mouth is very ſmall, and contains in each jaw two broad teeth, with ſharp edges. The colour of the back is duſky and dappled, and the belly is of a ſilvery white. When boiled, it has been obſerved to turn to a glutinous jelly, and would moſt probably ſerve for all the purpoſes of iſinglaſs, were enough of it found.

The Fiſhing Frog.

The fiſhing frog in ſhape very much reſembles a tad-pole or young frog, but it is of an enormous ſize, for it grows to above five feet long, and its mouth is ſometimes a yard wide. The eyes are placed on the top of the head, and are encircled with prickles. Immediately above the noſe there are two long beards or filaments, ſmall in the beginning, but thicker at the end, and round: theſe are ſaid, to anſwer a very ſingular purpoſe; for being made ſomewhat like a fiſhing-line, it is aſſerted, that the animal converts them to the purpoſes of fiſhing. With theſe extended, the fiſhing frog is ſaid to hide itſelf in muddy waters, and to leave nothing but the beards to be ſeen. The curioſity of the ſmaller fiſh bring them to view theſe filaments, and their hunger induces them to ſeize the bait. Upon this the animal in ambuſh inſtantly draws in its filaments with the little fiſh that had taken the bait, and devours it in an inſtant. This ſtory, though apparently improbable, has gained upon ſome of our beſt naturaliſts. The fiſhermen, have, in general, a great regard for this ugly fiſh, as it is an enemy to the dog fiſh, the bodies of thoſe fierce and voracious animals being often found in its ſtomach. Whenever they take it, therefore they always ſet it at liberty.

The Lump Fiſh.

The lump fiſh is trifling in ſize, compared to the former. Its length is but ſixteen inches, and its weight about four pounds: the ſhape of the body is like that of a bream, deep, and it ſwims edgeways; the back is ſharp and elevated, and the belly is flat. The lips, mouth, and tongue of this animal are of a deep red: the whole ſkin is rough, with bony knobs, and the largeſt row is along the ridge of the back. The belly is of a bright crimſon colour; but a circumſtance peculiar to this fiſh, is an oval aperture in the belly, ſurrounded with a fleſhy, ſoft ſubſtance, that ſeems bearded all round. By this it adheres with vaſt force to any thing it pleaſes. If flung into a pail of water, it will ſtick ſo cloſe to the bottom, that on taking the fiſh by the tail, one may lift up pail and all, though it hold ſeveral gallons of water. Great numbers of theſe fiſh are found along the coaſts of Greenland in the beginning

ning of ſummer, where they reſort to ſpawn. Their roe is remarkably large, and the Greenlanders boil it to a pulp for eating. They are extremely fat, but not admired in England, being both flabby and inſipid.

The Sea Snail.

The ſea ſnail takes its name from the ſoft and unctuous texture of its body, which reſembles that of the ſnail upon land. It is almoſt tranſparent, and ſoon diſſolves. It is not above five inches long. The colour, when freſh taken, is of a pale brown, and the ſhape of the body is round. It is taken in England at the mouths of rivers, four or five miles diſtant from the ſea.

The Pipe Fiſh.

The body of the pipe fiſh, in the thickeſt part, is not thicker than a ſwan-quill, while it is above ſixteen inches long. Its general colour is an olive brown, marked with numbers of bluiſh lines, pointing from the back to the belly. It is viviparous; for, on cruſhing one that was juſt taken, hundreds of very minute young ones were obſerved to crawl about.

The Hippocampus.

The Hippocampus, which from the form of its head ſome call the Sea Horſe, is not above nine inches long. It is about as thick as a man's thumb, and the body is ſaid, while alive, to have hair on the fore part, which falls off when it is dead. The ſnout is a ſort of a tube with a hole at the bottom, to which there is a cover, which the animal can open and ſhut at pleaſure. Behind the eyes there are two fins, which look like ears; and above them are two holes, which ſerve for reſpiration. In ſhort it is rather like a great caterpillar than a fiſh.

From theſe harmleſs animals, covered with a ſlight coat of mail, we may proceed to others, more thickly defended, and more formidably armed.

The Sea Orb.

In the firſt of this tribe we may rank the Sea Orb, which is almoſt round, has a mouth like a frog, and is from ſeven inches to two feet long. Like the porcupine, it is covered over with prickles, which point on every ſide, whence it is ſometimes called the Sea porcupine; and, when it is enraged, it can blow up its body as round as a bladder. Of this extraordinary creature there are many kinds. Some threatening only with ſpines, as the SEA HEDGE HOG; others defended with a bony helmet that covers the head, as the OSTRACION, &c.

Of theſe ſcarce one is without its peculiar weapon of offence. The centriſcus wounds with its ſpine, the oſtracions poiſon with its venom; the orb is impregnable, and is abſolutely poiſonous, if eaten.

Theſe frightful animals are of different ſizes; ſome not bigger than a foot ball, and others as large as a buſhel. The Americans often amuſe themſelves with catching theſe frightful creatures by a line and hook baited with a piece of ſea-crab. The animal approaches the bait with its ſpines flattened; but when hooked and ſtopped by the line, all its ſpines are inſtantly erected; the whole body being armed in ſuch a manner at every point, that it is impoſſible to lay hold of it on any part. For this reaſon it is dragged to ſome diſtance from the water, where it quickly expires. In the middle of the belly of all theſe there is a ſort of bag or bladder filled with air, by the inflation of which the animal ſwells itſelf in the manner already mentioned.

To

The Galley Fiſh.

To theſe animals we may add the galley fiſh, which Linnæus degrades into the inſect tribe, under the title of the Meduſa. To the eye of a careleſs ſpectator, this fiſh ſeems a tranſparent bubble ſwimming on the ſurface of the ſea, or like a bladder variouſly and beautifully painted with vivid colours, where red and violet predominate, as variouſly oppoſed to the beams of the ſun. It is, however, an actual fiſh; the body of which is compoſed of cartilages, and a very thin ſkin filled with air, which keeps the animal floating on the ſurface, at the pleaſure of the winds and waves. Perſons who happen to be walking along the ſhore often happen to tread upon theſe animals; and the burſting of their body yields a report as when one treads upon the ſwim of a fiſh. It has eight broad feet with which it ſwims, or which it expands to catch the air as with a ſail. It faſtens itſelf to whatever it meets by its legs, which have an adheſive quality. But what is moſt remarkable in this extraordinary creature, is the violent pungency of the ſlimy ſubſtance, with which its legs are ſmeared. If the ſmalleſt quantity but touch the ſkin, its quality is ſo cauſtic, that it burns like hot oil dropped on the part affected. The pain is moſt violent in the heat of the day, but ceaſes in the cool of the evening.

CHAP. XXXI.

OF SPINOUS FISHES IN GENERAL—OF FISH OF PASSAGE—THE SALMON—SHAD—SMELT—FLOUNDER, &c.—THE COD—COD FISHING—THE HADDOCK—THE WHITING—THE MACKAREL—THE HERRING—GROWTH OF FISHES—THE DORADO—THE FLYING FISH—THE PIKE—DISEASES OF FISHES—POISONOUS QUALITY.

THE third general diviſion of fiſhes is into that of the Spinous or bony kind. Theſe are obviouſly diſtinguiſhed from the reſt by having a complete bony covering to their gills; by their breathing with their gills only; by their bones which are ſharp and thorny; and their tails, which are placed in a ſituation perpendicular to the body.

As this order is extremely numerous, it has been divided by a French naturaliſt, Mr Gouan, into two grand diviſions, and theſe again into ſub-diviſions.

PRICKLY-FINNED FISHES.

PRICKLY-FINNED APODAL FISHES.

1. *THE Tricburus.* The body of this fiſh is of a ſword-form: the head is oblong: the teeth are ſword-like, bearded near the points: the fore-teeth are largeſt: the fin that covers the gills with ſeven ſpines: the tail ending in a point without fins: an inhabitant near the Oriental and American ſhores; of a ſilvery white; frequently leaping into the fiſhermen's boats in China.

2. *The Xiphias*, or *Sword-fiſh*, has the body round, the head long, the upper jaw terminating by a long beak, in the form of a ſword. A fin with ſix ſpines covers its gills. It is an inhabitant of Europe; and an enemy to the whale.

3. *The Ophidium*, *Dorado*, or *Gilthead*. The body is ſword-like: the head is blunt: the fin covering the gills with ſeven ſpines: the opening of the mouth is ſide-ways: the fins of the back, the anus, and the tail all join together. It is the moſt beautiful of all fiſhes, covered over with green, gold, and ſilver. The ſailors call it dolphin, and it chaces the flying fiſh.

PRICKLY-FINNED JUGULAR FISHES.

4. *The Trachinus*, or *Weever*. The body is oblong. The head is obtuſe. The bones covering the gills are jagged at the bottom: the fins covering the gills have ſix ſpines. The anus near the breaſt; buries itſelf in the ſands, leaving only its noſe out; and if troden upon, immediately ſtrikes with the ſpines that form its dorſal fins, which are venomous and dangerous.

5. *The Uranoſcopus*. The body is wedge-like: the head is almoſt round, and larger than the body. The mouth is flat: the eyes are on the top of the head: the fin that covers the gills has five ſpines: the anus is in the middle of the body; and it is an inhabitant of the Mediterranean Sea.

6. *The Callyonymus*, or *Dragonet*. The body is almoſt wedge-like: the head is broad, and larger than the body: the mouth is even with the body: the bony covering of the gills are cloſe ſhut: the opening to the gills is behind the head; the fin covering the gills has ſix ſpines; and is an inhabitant of the Atlantic Ocean.

7. *The Blennius*, or *Blenny*. The body is oblong: the head is obtuſely bevil: the teeth are a ſingle range: the fin covering the gills has ſix ſpines: the ventral fins have two ſmall blunt bones in each. A ſpecies of this animal is viviparous.

PRICKLY-FINNED THORACIC FISHES.

8. *The Gobius*, or *Gudgeon*. The body is round and oblong. The head has two little holes between the eyes, one before the other: the fin covering the gills has ſix ſpines; and the ventral fins are joined together.

9. *The Cepola*. The body is ſword-like. The head is blunt: the mouth is flat: the fin covering the gills has ſix ſpines; the fins are diſtinct; and it is an inhabitant of the Mediterranean Sea.

10. *The Coryphæna*, or *Razor-fiſh*. The body is wedge-like; the head is very bevil: the fin covering the gills has five ſpines.

11. *The Scomber*, or *Makarel*. The body is oblong: the line running down the ſide is zigzagged towards the tail: the head is ſharp and ſmall: the fins covering the gills have ſix ſpines: and there are ſeveral falſe fins towards the tail.

12. *The Labrus*, or *Wraſſe*. The body is oval: the head is middling: the lips are doubled inward. It has both cutting and grinding teeth: the covers of the gills are ſcaly: the fin covering the gills have five ſpines: the pectoral fins are pointed.

13.

13. *The Sparus*, or *Sea-bream*. The body is oblong: the head is middling: the lips are not inverted; the teeth are cutting and grinding: the cover of the gills are ſcaly: the fins covering the gills have five rays; and the pectoral fins are pointed.

14. *The Chætodon*, or *Cat-fiſh*. The body is oblong: the head is ſmall: the teeth are ſlender and bending: the fin covering the gills has five or ſix ſpines: the fins of the back and anus are ſcaly.

15. *The Sciæna*. The body is nearly elliptical: the head is bevil: the covers of the fins are ſcaly: the fin covering the gills has ſix rays: the fins of the back are jagged, and hidden in a furrow in the back.

16. *The Perch*. The body is oblong: the head bevil: the covers of the gills ſcally and toothed: the fin covering the gills has ſeven ſpines: the fins in ſome are jagged.

17. The *Scorpæna*, or *Father-laſher*. The body is oblong: the head is great, with beards: the covers of the gills are armed with prickles: the fin covering the gills has ſeven ſpines.

18. *The Mullus*, or *Surmulet*. The body is ſlender: the head is almoſt four-cornered: the fin covering the gills has three ſpines. Some of theſe have beards: a fiſh highly prized by the Romans, and ſtill conſidered as a very great delicacy.

19. *The Trigla*, or the *Gurnard*. The body is ſlender: the head nearly four cornered, and covered with a bony coat: the fin covering the gills has ſeven ſpines: the pectoral and ventral fins are ſtrengthened with additional muſcles and bones, and are very large for the animal's ſize.

20. *The Cottus*, or *Bull-head*. The body is wedge-like: the head is flat and broader than the body: the fin covering the gills has ſix ſpines: the head is furniſhed with prickles, knobs and beards.

21. *The Zeus*, or *Doree*. The body is oblong: the head is large and bevil: the fin covering the gills has ſeven rays; the fins jagged: the upper jaw has a looſe floating ſkin depending into the mouth.

22. *The Thrachipterus*, or *Sabre*. The body is ſword-like: the head bevil: the fin covering the gills has ſix ſpines: the lateral line ſtraight: the ſcales are in a ſingle order: a looſe ſkin is in both jaws.

23. *The Gaſteroſteus*, or *Stickleback*. The body is broadeſt towards the tail: the head is oblong: the fin covering the gills has three ſpines; and its prickles ſtart backward before the back fins and the fins of the anus.

PRICKLY-FINNED ABDOMINAL FISH.

24. *The Silurus*, or *Sheat-fiſh*. The body is oblong: the head large: the fin covering the gills has from four to fourteen ſpines: the leading bones or ſpines in the back and pectoral fins are toothed.

25. *The Mugil*, or *Mullet*. The body is oblong: the head is almoſt conical: the upper jaw has a furrow, which receives the prominence of the under; the fin covering the gills has ſeven rays.

26. *The Polynemus*. The body is oblong: the head has a beak: the fin covering the gills has from five to ſeven ſpines. The bones that move the pectoral fins articulated to thoſe fins.

27. *The Theutys*. The body is almoſt elliptical: the head is abruptly ſhortened: the fin covering the gills has five rays: the teeth are in a ſingle row, cloſe, ſtrong, and even.

28. *The Elops*, or *Sea-ſerpent*. The body is ſlender: the head is large: the fin covering the gills is double and has thirty ſpines, and is armed externally with five bones like teeth.

SOFT-FINNED FISHES.

SOFT-FINNED APODAL FISHES.

29. *THE Muræna*, or *El*. The body is round and ſlender: the head terminates in a beak; the fin covering the gills has ten rays: the opening to the gills is placed near the pectoral fins; the fins of the back, the anus, and the tail, unite in one.

30. *The Gymnotus*, or *Carapo*. The body is broadeſt on the back, like the blade of a knife: the head is ſmall: the fin covering the gills has five rays. This fiſh has no fins on the back but it has two beards or filaments from the upper lip, and is an inhabitant of Braſil.

31. *The Anarhicas*, or *Wolf-fiſh*. The body is roundiſh and ſlender: the head is large and blunt: the fore-teeth above and below are conical: the grinding teeth and thoſe in the palate are round: and the fin covering the gills has ſix rays.

32. *The Stromateus*. The body is oblong: the head is ſmall: the teeth are moderately ſharp: the fin covering the gills has five or ſix rays.

33. *The Ammodytes*, or *Launce*. The body is ſlender and roundiſh; the head is terminated by a beak: the teeth are of a hair-like fineneſs: and the fin covering the gills has ſeven rays.

SOFT-FINNED JUGULAR FISHES.

34. *The Lepadogaſter*. The body is wedge-like: the head oblong, forwarder than the body, flattiſh, the beak reſembles that of a duck: the pectoral fins are double, two on each ſide: the ventral fins are joined together. There is a kind of bony breaſt-plate between the pectoral fins: the fin covering the gills has five rays.

35. *The Gadus*, or *Cod-fiſh*. The body is oblong: the head wedge-like: the fin covering the gills has ſeven rays. This fiſh has ſeveral back and anal fins.

SOFT FINNED THORACIC FISHES.

36. *The Plemonecles*, or *Flumide*. The body is elliptical: the head ſmall: both eyes are on one ſide of the head: the fin covering the gills has from four to ſeven rays.

37. *The Echeneis*, or *Sucking-fiſh*. The body is almoſt wedge-like, moderately round: the head is broader than the body: the fin covering the gills has ten rays. Its breaſt plate is of an oval form, ſtreaked like a ladder, and toothed.

38. *The Lipidopus*, or the *Garter-fiſh*. The body is ſword-like: the head lengthened out: the fins covering the gills have ſeven rays. It has three ſcales only on the whole body; two in the place of the ventral fins; the third from that of the anus.

SOFT-FINNED ABDOMINAL FISHES.

39. *The Loricaria*. The body is cruſted over: the head broad, with a beak. It has no teeth: the fin covering the gills has ſix rays.

40.

40. *The Atherina*, or *Atherine*. The body is oblong: the head is of a middling ſize: the lips are indented: the fin covering the gills has ſix rays: the line on the ſides reſembles a ſilver band.

41. *The Salmo*, or *Salmon*. The body is oblong: the head is a little ſharp: the fin covering the gills has from four to ten rays: the laſt fin on the back, has no correſpondent muſcles.

42. *The Fiſtularia*. The body is angular, in form of a ſpindle: the head is pipe-faſhion, with a beak; the fin covering the gills has ſeven rays: the under jaw covers the upper.

43. *The Eſox*, or *Pike*. The body is round: the head has a beak: the under-jaw pierced longitudinally has ſmall holes: the fin covering the gills has from ſeven to twelve rays.

44. *The Argentina*, or *Argentine*. The body is a little round and ſlender. The head has a beak, broader than the body: the fin covering the gills has eight rays. The back fin is ſpurious.

45. *The Clupea*, or *Herring*. The body is a little oblong: the head has a ſmall beak: the fin covering the gills have eight rays.

46. *The Exocetas*, or *Flying-fiſh*. The body is oblong: the head almoſt three-cornered: the fin covering the gills has ten rays: the pectoral fins are placed high, and as long as the whole body. The back fin is at the extremity of the back.

47. *The Cyprinus*, or *Carp*. The head has a ſmall beak: the hinder part of the bone covering the gills is marked with a creſcent: the fin covering the gills has three rays.

48. *The Cobitis*, or *Loach*. The body is oblong; and almoſt equally broad throughout. The head is ſmall, a little elongated. The eyes are in the hinder part of the head: the fin covering the gills has from four to ſix rays: the covers of the gills are cloſed below.

49. *The Amia*, or *Bonito*. The body is round and ſlender; the head, forehead, and breaſt, have no ſkin: the fin covering the gills has twelve rays; and it has two beards from the noſe.

50. *The Mormyrus*. The body is oblong: the head is elongated: the fin covering the gills has a ſingle ray. The opening to the gills is linear, and has no bone covering them.

Such is the ſyſtem of Mr Gouan; to which if we reduce any fiſh, we can know its rank, its affinities, and part of its anatomy; all which make a conſiderable part in its natural hiſtory. But, to ſhew the uſe of this ſyſtem ſtill more clearly, ſuppoſe I meet with a fiſh, of which I know not the name, and of which I deſire to know ſomething more. The way is, firſt to know whether it be a cartilaginous fiſh, which it is if it want fins to open and ſhut the gills, which the cartilaginous kinds are wholly without. If I find that it has them, then it is a ſpinous fiſh; and, in order to know its kind, I examine its fins, whether they be prickly or ſoft. If I find them ſoft; it is to be ranked among the ſoft finned fiſhes. I then examine its ventral, or belly-fins, and finding that the fiſh has them, I look for their ſituation, and find they lie nearer to the tail than to the pectoral fins. By this I find the animal to be a ſoft-finned abdominal fiſh. Then, to know which of the kinds of theſe fiſhes it is, I examine its figure and the ſhape of its head. I find the body rather oblong; the head with a ſmall beak; the lower jaw like a ſaw; the fin covering the gills with eight rays. This animal muſt therefore be the herring, or one of that family; ſuch as the pilchard,

pilchard, the ſprat, the ſhade, or the anchovy. To give another inſtance: upon examining the fins of a fiſh with which I am unacquainted, I find them prickly; I then look for the ſituation of the ventral fins; I find them entirely wanting. This, then, muſt be a prickly-finned apodal fiſh. Of this kind there are but three; and, by comparing the fiſh with the deſcription, I find it either of the trichurus kind, the ſword-fiſh, or the gilt-head. Upon examining alſo its internal ſtructure, I ſhall find a very great likeneſs between my fiſh and that placed at the head of the family.

Having given a method by which Spinous Fiſhes may be diſtinguiſhed from each other, the hiſtory of each in particular might naturally be expected to follow: but ſuch a diſtinct account of each would be very diſguſting, from the unavoidable uniformity of every deſcription. The hiſtory of any one of this claſs very much reſembles that of all the reſt. They breathe air and water through the gills. They live by rapine, each devouring ſuch animals as its mouth is capable of admitting; and they propagate, not by producing their young alive, as in the cetaceous tribes, nor by diſtinct eggs, as in the generality of the cartilaginous tribes, but by ſpawn, or peaſe, as they are generally called, which they produce by hundreds of thouſands.

The bones of this claſs of fiſhes, when examined but ſlightly, appear to be entirely ſolid; yet, when viewed more cloſely, every bone will be found hollow, and filled with a ſubſtance leſs rancid and oily than marrow. Theſe bones are very numerous, and pointed; and, as in quadrupeds, are the props or ſtays to which the muſcles are fixed, which move the different parts of the body.

The number of bones in all ſpinous fiſhes of the ſame kind, is always the ſame. It is a vulgar way of ſpeaking, to ſay, that fiſhes are at ſome ſeaſons more bony than at others; but this ſcarce requires contradiction. It is true, that fiſh are at ſome ſeaſons much fatter than at others. Hence the quantity of the fleſh being diminiſhed, and that of the bones remaining the ſame, they appear to increaſe in number, as they actually bear a greater proportion.

As the ſpinous fiſh partake leſs of the quadruped in their formation than any others, ſo they can bear to live out of their own element a ſhorter time. Some, indeed, are more vivacious in air than others. The eel will live ſeveral hours out of water; and the carp has been known to be fattened in a damp cellar. The method is, by placing it in a net well wrapped up in wet moſs, the mouth only out, and then hung up in a vault. The fiſh is fed with white bread and milk, and the net now and then plunged into the water.

Yet it is impoſſible to account for the different operations of the ſame element upon animals, that appear to have the ſame conformation. To ſome fiſhes, bred in the ſea, freſh water is immediate deſtruction. On the other hand, ſome fiſhes, that live in our lakes and ponds, cannot bear the ſalt water. This circumſtance may poſſibly ariſe from the ſuperior weight of the ſea water. As, from the great quantity of ſalt diſſolved in its compoſition, it is much heavier than freſh water, ſo it is probable it lies with greater force upon the organs of reſpiration, and gives them their proper and neceſſary play. On the contrary, thoſe fiſh which are uſed only to freſh water, cannot bear the weight of the ſaline fluid, and expire in a manner ſuffocated in the groſſneſs of the ſtrange element.

There

There are ſome tribes, however, that ſpend a part of their ſeaſon in the one, and a part in the other. Thus the *ſalmon*, the *ſhad*, the *ſmelt*, and the *flounder*, annually quit their native ocean, and come up our rivers to depoſit their ſpawn. This ſeems the moſt important buſineſs of their lives; and there is no danger which they will not encounter, even to the ſurmounting precipices, to find a proper place for the depoſition of their future offſpring. The ſalmon, upon theſe occaſions, is ſeen to aſcend rivers five hundred miles from the ſea, and to brave, not only the danger of various enemies, but alſo to ſpring up cataracts as high as a houſe. As ſoon as they come to the bottom of the torrent, they ſeem diſappointed to meet the obſtruction, and ſwim ſome paces back. They then take a view of the danger that lies before them, ſurvey it motionleſs for ſome minutes, advance, and again retreat. At laſt, however, ſummoning up all their force, they take a leap from the bottom, their body ſtraight, and ſtrongly in motion; and thus moſt frequently clear every obſtruction. It ſometimes, happens, that they want ſtrength to make the leap; and then, in our fiſheries, they are taken in their deſcent. But the length of the voyage performed by theſe fiſhes, is ſport, if compared to what is annually undertaken by ſome tribes that conſtantly reſide in the ocean. Of this kind are the cod, the haddock, the whiting, the mackarel, the tunny, the herring, and the pilchard.

The Cod.

The cod appears to be the foremoſt of this wandering tribe; and is only found in our northern part of the world. This animal's chief place of reſort is on the banks of Newfoundland, and the other ſand banks that lie off Cape-Breton. That extenſive flat ſeems to be no other than the broad top of a ſea-mountain, extending above five hundred miles long, and ſurrounded with a deeper ſea. Thither the cod annually repair in numbers beyond the power of calculation, to feed on the quantity of worms that are to be found in the ſandy bottom. They are taken in ſuch quantities, that they ſupply all Europe with a conſiderable ſhare of proviſion. The Engliſh have ſtages erected all along the ſhore for ſalting and drying them; and the fiſhermen, who take them with the hook and line, draw them in as faſt as they can throw out. This immenſe havock, however, makes but a very ſmall diminution, when compared to their numbers; and when their proviſion there is exhauſted, or the ſeaſon for propagation returns, they go off to the polar ſeas, where they depoſit.

The *Haddock*, the *Whiting*, and the *Mackarel*, are thought, by ſome, to be driven upon our coaſts rather by their fears than their appetites; and it is to the purſuit of the larger fiſhes, we owe their welcome viſits. It is much more probable, that they come for that food which is found in more plenty near the ſhore, than farther out at ſea. The limits of a ſhoal are preciſely known; for if the fiſhermen put down their lines at the diſtance of more than three miles from ſhore, they catch nothing but dog-fiſh: a proof that the haddock is not there.

The Herring and the Pilchard.

Of all migrating fiſh, the herring and the pilchard take the moſt adventurous voyages. Herrings abound moſt in the higheſt northern latitudes. In thoſe inacceſſible ſeas, that are covered with ice for a great part of the year, the herring and pilchard find a quiet and ſure retreat

from

from all their numerous enemies. Thither neither man, nor their ſtill more deſtructive enemy, the fin-fiſh, or the cachalot, dares to purſue them. The quantity of inſect food which thoſe ſeas ſupply, is very great; whence, in that remote ſituation, defended by the icy rigour of the climate, they live at eaſe, and multiply exceedingly faſt. From this moſt deſirable retreat, Anderſon ſuppoſes they would never depart, but that their numbers render it neceſſary for them to migrate; and, as bees from a hive, they are compelled to ſeek for other retreats.

For this reaſon, the great colony is ſeen to ſet out from the icy ſea about the middle of winter; compoſed of moſt incredible numbers. But they no ſooner leave their retreats, but millions of enemies appear to thin their ſquadrons. The fin-fiſh and the cachalot ſwallow numbers at a yawn. The porpeſſes, the grampus, the ſhark, and the whole numerous tribe of dog-fiſh, find them an eaſy prey, and deſiſt from making war upon each other. Beſides the unnumbered flocks of ſea-fowl that chiefly inhabit near the pole, watch the outſet of their dangerous migration, and ſpread extenſive ruin.

In this exigence, the defenceleſs emigrants find no other ſafety but by crouding cloſer together, and leaving to the outmoſt bands the danger of being the firſt devoured. Thus, like ſheep when frighted, that always rnn together in a body, and each finding ſome protection in being but one of many that are equally liable to invaſion, they are ſeen to ſeparate into ſhoals, one body of which moves to the weſt, and pours down along the coaſts of America, as far ſouth as Carolina, and but ſeldom farther. In Cheſapeak Bay, the annual innundation of theſe fiſh is ſo great, that they cover the ſhores in ſuch quantities as to become a nuiſance. Thoſe that hold more to the eaſt, and come down towards Europe, endeavour to ſave themſelves from their mercileſs purſuers, by approaching the firſt ſhore they can find. And that which firſt offers in their deſcent, is the coaſt of Iceland, in the beginning of March. Upon their arrival on that coaſt, their phalanx, which has already ſuffered conſiderably, is nevertheleſs of amazing extent, depth, and cloſeneſs, covering an extent of ſhore as large as the iſland itſelf. The whole water ſeems alive; and is ſeen black to a great diſtance.

That body which comes upon our coaſts, begins to appear off the Shetland Iſles in April. Theſe are the fore-runners of the grand ſhoal which deſcends in June; while its arrival is eaſily announced, by the number of its greedy attendants, the gannet, the gull, the ſhark, and the porpeſſes. When the main body is arrived, its breadth and depth is ſuch as to alter the very appearance of the ocean. It is divided into diſtinct columns, of five or ſix miles long, and three or four broad; while the water before them curls up, as if forced from its place. Sometimes they ſink for the ſpace of ten or fifteen minutes, then riſe again to the ſurface; and, in bright weather, reflect a variety of ſplendid colours, like a field beſpangled with purple, gold and azure. The fiſhermen are ready prepared to give them a proper reception; and, by nets made for the occaſion, they take ſometimes above two thouſand barrels at a draught.

The manner in which the eggs of fiſhes are impregnated is wholly unknown. All that obviouſly offers is, that in ponds the ſexes are often ſeen together among the long graſs at the edge of the water; that there they ſeem to ſtruggle; and that during this time they are in a

ſtate

ſtate of ſuffering; they grow thin; they loſe their appetite, and their fleſh becomes flabby; the ſcales of ſome grow rough, and they loſe their luſtre. On the contrary, when the time of coupling is over, their appetite returns; they re-aſſume their natural agility, and their ſcales become brilliant and beautiful.

The power of increaſing in theſe animals, exceeds our idea, as it would, in a very ſhort time, outſtrip all calculation. Although the uſual way with ſpinous fiſhes is to produce by ſpawn; yet there are ſome, ſuch as the eel and the blenny, that are known to bring forth their young alive.

With reſpect to the growth of fiſhes, it is obſerved, that among carps, particularly the firſt year, they grow to about the ſize of the leaf of a willow tree; and at two years, they are about four inches long. They grow but one inch more the third ſeaſon, which is five inches. Thoſe of four years old are about ſix inches; and ſeven after the fifth. From that to eight years old they are found to be large in proportion to the goodneſs of the pond, from eight to twelve inches. With regard to ſea-fiſh, the fiſhermen aſſure us that a fiſh muſt be ſix years old before it is fit to be ſerved up to table. They inſtance it in the growth of a mackarel. They aſſure us that thoſe of a year old are as large as one's finger; that thoſe of two years, are about twice that length; at three and four years, they are that ſmall kind of mackarel that have neither milts nor rows; and between five and ſix, they are thoſe full grown fiſh that are ſerved up to our tables. In the ſame manner, with regard to flat fiſhes, they tell us that the turbot and barble at one year are about the ſize of a crown piece; the ſecond year as large as the palm of one's hand; and at the fifth and ſixth year, they are large enough to be ſerved up to table. Thus it appears that fiſh are a conſiderable time in arriving at their full growth, and that they are a long time deſtroyed before it comes to their turn to be deſtroyers*.

All fiſh live upon each other, in ſome ſtate of their exiſtence. Thoſe with the largeſt mouths, attack and deſtroy the largeſt kinds; thoſe whoſe mouths are leſs, lie in wait for the ſmaller fry; and even theſe chiefly ſubſiſt upon ſpawn. Of thoſe which live in the ocean of the ſpinous kinds, the DORADO is the moſt voracious. This is chiefly found in the tropical climates; and is at once the moſt active, and the moſt beautiful of the finny race. It is about ſix feet long. The back is all over enamelled with ſpots of a bluiſh green and ſilver. The tail and fins are of a gold colour; and all have a brilliancy of tint, that nothing but Nature's pencil can attain to. The eyes are placed on each ſide of the head, large and beautiful, ſurrounded with circles of ſhining gold. In the ſeas where they are found, theſe fiſh are always in motion, and play round ſhips in full ſail, with eaſe and ſecurity. They are always either purſuing or purſued, they are ſeen continually in a ſtate of warfare; either defending themſelves againſt the ſhark, or darting after the ſmaller fiſhes. Above all others, the FLYING-FISH moſt abounds in theſe ſeas; and as it is a ſmall animal, ſeldom growing above the ſize of a herring, it is chiefly ſought by the dorado. Nature has furniſhed each reſpectively with the powers of purſuit and evaſion. The dorado being above ſix feet long, yet not thicker than a ſalmon, and furniſhed with a full complement of fins, cuts its way

* Traite des Peches, par Monſieur Duhamel. Sect. 3. p. 100.

through the water with amazing rapidity. On the other hand, the flying-fiſh is furniſhed with two pair of fins longer than the body, and theſe are alſo moved by a ſtronger ſet of muſcles than any other. This equality of power ſeems to furniſh one of the moſt entertaining ſpectacles thoſe ſeas can exhibit. The efforts to ſeize on the one ſide, and the arts to eſcape on the other, are perfectly amuſing. The dorado is ſeen, upon this occaſion, darting after its prey, which will not leave the water, while it has the advantage of ſwimming, in the beginning of the chace. But, like an hunted hare, being tired at laſt, it then has recourſe to flight. The long fins, which began to grow uſeleſs in the water, are now exerted in a different manner and a different direction to that in which they were employed in ſwimming. By theſe means the timid little animal riſes from the water, and flutters over its ſurface, for two or three hundred yards, till the muſcles employed in moving the wings are enfeebled by that particular manner of exertion. By this time, however, they have acquired a freſh power of renewing their efforts in the water, and the animal is capable of proceeding with ſome velocity by ſwimming. But ſtill the active enemy keeps it in view, and drives it again from the deep; till, at length the poor little creature is ſeen to dart to ſhorter diſtances, to flutter with greater effort, and to drop down at laſt into the mouth of its fierce purſuer. Not the dorado alone, but all animated nature ſeems combined againſt this little fiſh, which appears to poſſeſs double powers, only to be ſubject to greater dangers. For though it ſhould eſcape its enemies of the deep, yet the tropic bird and the albatroſs are for-ever upon the wing to ſeize it. Thus purſued in either element, it ſometimes ſeeks refuge from a new enemy; and it often happens that whole ſhoals of them fall on ſhipboard, where they furniſh man with an object of uſeleſs curioſity.

The greedineſs with which ſea-fiſh devour the bait is prodigious, if compared with the manner they take it in freſh water. The lines of ſuch fiſhermen as go to ſea, are coarſe, thick and clumſy, in compariſon of thoſe which are uſed in rivers. Their baits are ſeldom more than a a piece of fiſh, or the fleſh of ſome quadruped, ſtuck on the hook in a bungling manner; and ſcarce any art is employed to conceal the deception. But it is otherwiſe in freſh water; the lines muſt often be drawn to an hair-like fineneſs; they muſt be tinctured of the peculiar colour of the ſtream; the bait muſt be formed with the niceſt art, and even if poſſible to exceed the perfection of nature. Notwithſtanding this, the fiſhes approach it with diffidence, and often ſwim round it with diſdain. The cod, on the banks of Newfoundland, the inſtant the hook, which is only baited with the guts of the animal laſt taken, is dropped into the water, darts to it at once, and the fiſhermen have but to pull up as faſt as they throw down. But it is otherwiſe with thoſe who fiſh in freſh waters, they muſt wait whole hours in fruitleſs expectation; and *the patience of fiſhermen* is proverbial among us.

This comparative neglect of food, which is found in all the tribes of freſh water fiſhes, renders them leſs turbulent and leſs deſtructive among each other. Of all theſe the Pike is the moſt active and voracious; and our poets, whoſe buſineſs it is to obſerve the ſurface of nature, have called it the tyrant of the watery plain. The pike will attack every fiſh leſs than itſelf; and it is ſometimes ſeen choaked, by attempting to ſwallow ſuch as are too large. It is no matter of what

ſpecies

ſpecies the animal it purſues appears to be, whether of another or of its own. All are indiſcriminately devoured. Every fiſh, therefore, owes its ſafety to its minuteneſs, its celerity, or its courage: nor does the pike confine itſelf to feed on fiſh and frogs. It will draw down the water-rat and the young ducks, as they are ſwimming about. Geſner tells us of a mule that ſtopped to drink in the water, when a famiſhed pike, that was near, ſeized it by the noſe, nor was it diſengaged till the beaſt flung it on the ſhore. So great is their rapacity, that they will contend with the otter for its prey, and even endeavour to force it from him.

As fiſh are enemies to one another, ſo each ſpecies is infeſted with worms of different kinds, peculiar to itſelf. The great fiſh abound with them; and the little ones are not entirely free. Theſe troubleſome vermin lodge themſelves either in the jaws, and the inteſtines internally, or near the fins without. When fiſh are healthy and fat, they are not much annoyed by them; but in winter, when they are lean or ſickly, they ſuffer very much.

Nor does the reputed longevity of this claſs ſecure them from their peculiar diſorders. They are not only affected by too much cold, but there are frequently certain diſpoſitions of the element in which they reſide, unfavourable to their health and propagation. Some ponds they will not breed in, however artfully diſpoſed for ſupplying them with freſh recruits of water, as well as proviſion. In ſome ſeaſons alſo they are found to feel epidemic diſorders, and are ſeen dead by the water-ſide, without any apparent cauſe.

That ſome fiſhes in the warm climates are poiſonous when eaten, cannot be doubted. We have a paper in the Philoſophical Tranſactions, giving an account of the poiſonous qualities of thoſe found at New Providence, one of the Bahama iſlands. The author there aſſures us, that the greateſt part of the fiſh of that dreary coaſt, are all of a deadly nature. Their ſmalleſt effects being to bring on a terrible pain in the joints, which, if terminating favourably, leaves the patient without any appetite for ſeveral days after. It is not thoſe of the moſt deformed or of the moſt frightful figure, that are alone to be dreaded. All kinds, at different times, are alike dangerous; and the ſame ſpecies which has this day ſerved for nouriſhment, is the next, if tried, found to be fatal!

Happy Britain! where the ſea furniſhes an abundant and luxurious repaſt, and the freſh waters an innocent and harmleſs paſtime; where the angler, in chearful ſolitude, ſtrolls by the edge of the ſtream, and fears neither the coiled ſnake, nor the lurking crocodile. There he can retire at night, with his few trouts, to borrow the charming deſcription of old Walton, to ſome friendly cottage, where the landlady is hoſpitable, and the daughter is beautiful. The room is clean, and twenty ballads are ſtuck about the wall! There he can enjoy the company of a talkative brother ſportſman, have his trouts dreſſed for ſupper, tell tales, ſing old tunes, or make a catch! There he can talk of the wonders of nature with learned admiration, or find ſome harmleſs ſport to content him, and paſs away a little time, without offence to God, or injury to man!

CHAP. XXXII.

OF SHELL-FISH IN GENERAL—THE CRUSTACEOUS CLASS—THE LOBSTER—THE CRAB—THE LAND-CRAB—THE SOLDIER-CRAB—THE TORTOISE—THE LAND TORTOISE—THE TURTLE—OF TESTACEOUS-FISHES—OF THE TURBINATED OR SNAIL KIND—THE GARDEN SNAIL—THE FRESH-WATER-SNAIL—THE SEA-SNAIL—THE NAUTILUS—OF BIVALVED FISH—THE MUSCLE—THE OYSTER—THE COCKLE—THE SCOLLON—THE RAZOR-FISH—OF PEARLS AND THE FISHERY—OF MULTIVALVE SHELL-FISH—THE SEA-URCHIN—THE PHOLADES.

IN describing the inhabitants of the water, a class of animals occur, that mankind, from the place of their residence, have been content to call fish; but that naturalists, from their formation, have justly agreed to be unworthy of the name. Indeed, the affinity many of this kind bear to the insect tribe, may very well plead for the historian, who ranks them rather as insects. However the common language of a country must not be slightly invaded; the names of things may remain, if the philosopher be careful to give precision to our idea of them.

There are two classes of animals, inhabiting the water, which commonly receive the name of fishes, entirely different from those we have been describing, and also very distinct from each other. These are divided by naturalists into Crustaceous and Testaceous animals. They are both totally unlike fishes to appearance, and seem to invert the order of nature; and as those have their bones on the inside, and their muscles hung upon them for the purposes of life and motion; these, on the contrary, have all their bony parts on the outside, and all their muscles within. Indeed all who have seen a lobster or an oyster, perceive that the shell in these bears a strong analogy to the bones of other animals; and, that, by these shells, the animal is sustained and defended.

Crustaceous fish, such as the crab and the lobster, have a shell not quite of a stony hardness, but rather resembling a firm crust, and in some measure capable of yielding. Testaceous fishes, such as the oyster or cockle, are furnished with a shell of a stony hardness; very brittle, and incapable of yielding. Of the crustaceous kinds are the lobster, the crab, and the tortoise. Of the testaceous sorts, are that infinite tribe of oysters, muscles, cockles, and sea-snails.

The Lobster Kind.

However different in figure the lobster and the crab may seem, their manners and conformation are nearly the same. With all the voracious appetites of fishes, they are condemned to lead an insect life at the bottom of the water; and though pressed by continual hunger, they are often obliged to wait till accident brings them their prey. Though without any warmth in their bodies, or even without red blood circulating through their veins, they are animals wonderfully voracious. Whatever they seize upon that has life, is sure to perish. They even devour each other. But what is most singular is, they may, in some measure, be said to eat themselves; as they change their shell and their stomach every year, and their old stomach is generally the first morsel that serves to glut the new.

The

The *Lobſter* is an animal of ſo extraordinary a form, that thoſe who firſt ſee it are apt to miſtake the head for the tail. It is ſoon diſcovered however, that the animal moves with its claws foremoſt; and that the part which plays within itſelf by joints, like a coat of armour, is the tail. The mouth, like that of inſects, opens the long way of the body, not croſs-ways, as with man, and the higher race of animals. It is furniſhed with two teeth for the comminution of its food; but as theſe are not ſufficient, it has three more in the ſtomach; one on each ſide, and the other below. Between the two teeth there is a fleſhy ſubſtance, in the ſhape of a tongue. The inteſtines conſiſt of one long bowel, which reaches from the mouth to the vent; but what this animal differs in from all others, is, that the ſpinal marrow is in the breaſt bone. It is furniſhed with two long feelers or horns, on each ſide of the head, that ſeem to correct the dimneſs of its ſight, and to apprize the animal of its danger, or of its prey. The tail, or that jointed inſtrument at the other end, is the grand inſtrument of motion; and with this it can raiſe itſelf in the water. Under this we uſually ſee lodged the ſpawn in great abundance; every pea adhering to the next by a very fine filament, which is hardly perceiveable. Every lobſter is an hermaphrodite, and is ſuppoſed to be ſelf-impregnated. The ovary, or place where the ſpawn is firſt produced, is, toward the tail, where a red ſubſtance is always found, and which is nothing but a cluſter of peas, that are two ſmall for excluſion. From this receptacle there go two canals, that open on each ſide at the jointures of the ſhell, at the belly. Through theſe the peas deſcend to be excluded, and placed under the tail, where the animal preſerves them from danger till being furniſhed with limbs and motion, they drop off into the water.

When the young lobſters leave the parent, they immediately ſeek for refuge in the ſmalleſt clefts of rocks, and in ſuch-like crevices at the bottom of the ſea, where the entrance is but ſmall, and the opening can be eaſily defended. There, without ſeeming to take any food, they grow larger in a few weeks time, from the mere accidental ſubſtances which the water waſhes to their retreats. By this time alſo they acquire an hard, firm ſhell, which furniſhes them with both offenſive and defenſive armour. They then begin to iſſue from their fortreſſes, and boldly creep along the bottom, in hopes of meeting with more diminutive plunder. The ſpawn of fiſh, the ſmaller animals of their own kind, but chiefly the worms that keep at the bottom of the ſea, ſupply them with proviſion. They keep in this manner cloſe among the rocks, buſily employed in ſcratching up the ſand with their claws for worms, or ſurpriſing ſuch heedleſs animals as fall within their graſp. They have therefore little to apprehend, except from each other; for in them, as among fiſhes, the large are the moſt formidable of all enemies to the ſmall.

But this life of abundance and ſecurity is ſoon to have a moſt dangerous interruption. The body of the lobſter ſtill continuing to increaſe, while its ſhell remains of the ſame ſize, the animal becomes too large for its habitation, and muſt get rid of it. The young of this kind, therefore, that grow faſter, as I am aſſured by the fiſhermen, change their ſhell oftener than the old, who come to their full growth, and who remain in the ſame ſhell often for two years together. In general, however, all theſe animals change their ſhell once a year; and

this

this is not only a moſt painful operation, but alſo ſubjects them to every danger. Juſt before caſting its ſhell, it throws itſelf upon its back, ſtrikes its claws againſt each other, and every limb ſeems to tremble. Its ſeelers are agitated, and the whole body is in violent motion. It then ſwells itſelf in an unuſual manner, and at laſt the ſhell is ſeen to divide at its junctures. It alſo ſeems turned inſide out; and its ſtomach comes away with its ſhell. After this, by the ſame operation, it diſengages itſelf of the claws, which burſt at the joints; the animal, with a tremulous motion, caſting them off as man would kick off a boot that was too big for him.

Thus, in a ſhort time, this wonderful creature finds itſelf at liberty; but in ſo weak and enfeebled a ſtate, that it continues for ſeveral hours motionleſs. Indeed, ſo violent and painful is the operation, that many of them die under it; and thoſe which ſurvive, are in ſuch a weakly ſtate for ſome time, that they neither take food, nor venture from their retreats. Immediately after this change, they have not only the ſoftneſs, but the timidity of a worm. Every animal of the deep is then a powerful enemy, which they can neither eſcape nor oppoſe; and this, in fact, is the time when the dog-fiſh, the cod, and the ray, devour them by hundreds. But this ſtate of defenceleſs imbecility continues for a very ſhort time. The animal, in leſs than two days, is ſeen to have the ſkin that covered its body grown almoſt as hard as before: its appetite is ſeen to encreaſe; and, the firſt object that tempts its gluttony, is its own ſtomach, of which it ſo lately got rid. This it devours with great eagerneſs; and ſome time after even eats its former ſhell. In about forty eight hours, in proportion to the animal's health and ſtrength, the new ſhell is perfectly formed, and as hard as that which was but juſt thrown aſide.

When the lobſter is completely equipped in its new ſhell, it then appears how much it has grown in the ſpace of a very few days. If the dimenſions of the old ſhell be compared with thoſe of the new, it will be found that the creature is increaſed above a third in its ſize; and, like a boy that has outgrown his clothes, it ſeems wonderful how the deſerted ſhell was able to contain ſo great an animal as fills the new.

The creature thus equipped, not only with a complete covering, but alſo furniſhed with a greater ſhare of ſtrength and courage, ventures more boldly among the animals at the bottom; and not a week paſſes that in its combats it does not ſuffer ſome mutilation. A joint, or even a whole claw, is ſometimes ſnapped off in theſe encounters. At certain ſeaſons of the year theſe animals never meet without an engagement. In theſe, to come off with the loſs of a leg, or even a claw, is conſidered as no great calamity. The victor carries off the ſpoil to feaſt upon at his leaſure, while the other retires from the defeat to wait for a thorough repair. This repair is not long in making. From the place where the joint of the claw was cut away, is ſeen in a moſt ſurpriſing manner to burgeon out the beginning of a new claw. This, if obſerved, at firſt, is ſmall and tender, but grows, in the ſpace of three weeks, to be almoſt as large and as powerful as the old one. I ſay almoſt as large, for it never arrives to the full ſize. This too is the reaſon we generally find the claws of the lobſters of unequal magnitude.

Of

Of this extraordinary yet well known animal there are many varieties, with ſome differences in the claws, but little in the habits or conformation. It is found above three feet long; and if we may admit the ſhrimp and the prawn into the claſs, though unfurniſhed with claws, it is found not above an inch. Theſe all live in the water, and can bear its abſence but a few hours. The ſhell is black when taken out of the water, but turns red by boiling. The moſt common way of taking the lobſter is in a baſket, or pot, as the fiſhermen call it, made of wicker-work, in which they put the bait, and then throw it to the bottom of the ſea, in ſix or ten fathom water. The lobſters creep into this for the ſake of the bait, but are unable to extricate themſelves. The river craw-fiſh differs little from the lobſter, only the one will live in freſh water, and the other will thrive only in the ſea.

The Crab.

The crab is found equally upon land as in the water. The Land-crab is found in ſome of the warmer regions of Europe, and in great abundance in all the tropical climates in Africa and America. They are of various kinds, and endued with various properties. Some are healthful, delicious, and nouriſhing food; others are poiſonous or malignant to the laſt degree: ſome are not above half an inch broad others are found a foot over: ſome are of a dirty brown, and others beautifully mottled. That animal called the violet crab of the Caribbee Iſlands, is the moſt noted, both for its ſhape, the delicacy of its fleſh, and the ſingularity of its manners.

The violet crab ſomewhat reſembles two hands cut through the middle and joined together; for each ſide is like four fingers, and the two nippers or claws reſemble the thumbs. All the reſt of the body is covered with a ſhell as large as a man's hand and bunched in the middle on the fore-part of which there are two long eyes of the ſize of a grain of barley, tranſparent as cryſtal and hard as horn. A little below theſe is the mouth, covered with a ſort of barbs, under which there are two broad ſharp teeth white as ſnow. They are not placed, as in other animals, croſs-ways, but in the oppoſite direction, not unlike the blades of a pair of ſciſſars. With theſe teeth they can eaſily cut leaves, fruits, and rotten wood, which they uſually feed upon. But their principal inſtrument for cutting and ſeizing their food is their nippers, which catch ſuch an hold, that the animal loſes the limb ſooner than its graſp, and is often ſeen ſcampering off, having left its claw in the enemy. The faithful claw ſeems to perform its duty, and keeps for above a minute faſtened upon the finger while the crab is making off *. In fact it loſes no great matter by leaving a leg or an arm, for they ſoon grow again, and the animal is found as perfect as before.

This however, is the leaſt ſurprizing part of this creature's hiſtory. What I am about to relate however, were it not as well known and as confidently confirmed as any other circumſtance in natural hiſtory, might ſtagger our belief. Theſe animals live not only in a kind of ſociety in their retreats in the mountains, but regularly once a year march down to the ſea-ſide in a body of ſome millions together. As they multiply in great numbers, they chuſe the months of April or May to begin their expedition; and then ſally out by thouſands from the ſtumps of hollow trees, from the clefts of rocks, and from the holes which they

* Brown's Jamaica, p. 423

they dig for themſelves under the ſurface of the earth. At that time the whole ground is covered with this band of adventurers. The ſea is their place of deſtination, and to that they direct their march with right-lined preciſion. No geometrician could ſend them to their deſtined ſtation by a ſhorter courſe. They neither turn to the right or left, whatever obſtacles intervene; and even if they meet with a houſe, they will attempt to ſcale the walls. But though this be the general order of their route, they upon other occaſions are compelled to conform to the face of the country; and if it be interſected by rivers, they are then ſeen to wind along the courſe of the ſtream. The proceſſion ſets forward from the mountains with the regularity of an army under the conduct of an experienced commander. They are commonly divided into three battalions; of which, the firſt conſiſts of the ſtrongeſt and boldeſt males, that like pioneers, march forward to clear the route and to encounter the greateſt dangers. Theſe are often obliged to halt for want of rain, and to go into the moſt convenient encampment till the weather changes. The main body of the army is compoſed of females, which never leave the mountains till the rain is ſet in for ſome time, and then deſcend in regular battalia, being formed into columns of fifty paces broad, and three miles deep. Three or four days after this the rear-guard follows, a ſtraggling undiſciplined tribe, of males and females, but neither ſo robuſt nor ſo numerous as the former. The night is moſt favourable for their march; but if it rains by day, they avail themſelves of it; and continue to move forward in their ſlow uniform manner. When the ſun ſhines and is hot upon the ſurface of the ground, they then make an univerſal halt, and wait till the cool of the evening. When they are terrified, they march back in a confuſed diſorderly manner, holding up their nippers, with which they ſometimes tear off a piece of the ſkin, and then leave the weapon where they inflicted the wound. They even try to intimidate their enemies; for they often clatter their nippers together, as if to threaten thoſe that come to diſturb them. But though they thus ſtrive to be formidable to man, they are much more ſo to each other; for if any of them by accident is maimed in ſuch a manner as to be incapable of proceeding, the reſt fall upon and devour it on the ſpot, and then purſue their journey.

When after a fatiguing march, and eſcaping a thouſand dangers, they are ſometimes three months in getting to the ſhore, they have arrived at their deſtined port, they prepare to caſt their ſpawn. The peas are as yet within their bodies, and not excluded, as is uſual in animals of this kind, under the tail; for the creature waits for the benefit of the ſea-water to help the delivery. For this purpoſe, the crab has no ſooner reached the ſhore, than it eagerly goes to the edge of the water, and lets the waves waſh over its body two or three times. This ſeems only a preparation for bringing their ſpawn to maturity; for without farther delay they withdraw to ſeek a lodging upon land. In the mean time, the ſpawn grows larger, is excluded out of the body, and ſticks to the barbs under the flap, or more properly the tail. This bunch is as big as an hen's egg, and is like the roes of herrings. In this ſtate of pregnancy, they once more ſeek the ſhore for the laſt time, and ſhaking off their ſpawn into the water, leave accident to bring it to maturity. At this time whole ſhoals of hungry fiſh are at the ſhore, and about two thirds of the crabs eggs are immediately devoured by

by theſe rapacious invaders. The eggs that eſcape are hatched under the ſand; and ſoon after millions at a time of theſe little crabs are ſeen to quit the ſhore, and to travel up to the mountains.

The old ones, however, are not ſo active to return. They have become ſo feeble and lean, that they can hardly creep along, and the fleſh at that time changes its colour. Moſt of them, therefore, are obliged to continue in the flat parts of the country till they recover holes in the earth, which they cover at the mouth with leaves and dirt, that no air may enter. There they throw off their old ſhells, which they leave as it were quite whole, the place where they opened on the belly being unſeen. At that time they are entirely naked, and almoſt without motion for ſix days together, when they become ſo fat as to be delicious food. They have then under their ſtomachs four large white ſtones, which gradually decreaſe in proportion as the ſhell hardens, and when they come to perfection are not to be found. Now the animal is ſeen to make its way ſlowly back; and all this is moſt commonly performed in the ſpace of ſix weeks.

The deſcent of theſe creatures for ſuch important purpoſes deſerves our admiration; but there is an animal of the lobſter kind that annually deſcends from its mountains in like manner, and for purpoſes ſtill more important and various. Its deſcent is not only to produce an offſpring, but to procure a covering; not only to ſecure a family, but to furniſh an houſe. The animal I mean is the *ſoldier-crab*, which is ſomewhat like the lobſter, if diveſted of its ſhell. It is uſually about four inches long, has no ſhell behind, but is covered down to the tail with a rough ſkin, terminating in a point. It is however armed with ſtrong hard nippers before, like the lobſter; and one of them is as thick as a man's thumb, and pinches moſt powerfully. It is, as I ſaid, without a ſhell to any part except its nippers. But what Nature has denied this animal it takes care to ſupply by art. It takes poſſeſſion of the deſerted ſhell of ſome other animal, and reſides in it, till by growing too large for its habitation, it is under a neceſſity of change. It is a native of the Weſt-India Iſlands; and like the former, it is ſeen every year deſcending from the mountains to the ſea-ſhore, to depoſit its ſpawn, and to provide itſelf with a new ſhell. This is a moſt buſtling time with it, having ſo many things to do; and, in fact, it appears very buſy. It is very probable that its firſt care is to provide for its offſpring before it attends to its own wants; and it is thought, from the number of little ſhells which it is ſeen to examine, that it depoſits its ſpawn in them, which thus is placed in perfect ſecurity till the time of excluſion.

Yet it is not only till after many trials, but many combats alſo, that the ſoldier is completely accoutered; for there is often a conteſt between two of them for ſome favourite ſhell. They both endeavour to take poſſeſſion; they ſtrike with their claws; they bite each other, till the weakeſt is obliged to yield, by giving up the object of diſpute. Upon this the victor immediately takes poſſeſſion, and parades in his new conqueſt three or four times back and forward upon the ſtrand before his envious antagoniſt.

When this animal is taken, it ſends forth a feeble cry, endeavouring to ſeize the enemy with its nippers; which if it faſtens upon it will ſooner die than quit the graſp. The wound it makes is very painful,

and not eaſily cured. For this reaſon, and as it is not much eſteemed for its fleſh, it is generally permitted to return to its old retreat to the mountains in ſafety. There it continues till the neceſſity of changing once more, and the deſire of producing an offſpring, expoſe it to freſh dangers next year.

Tortoiſes.

Tortoiſes are uſually divided into thoſe that live upon land, and thoſe that ſubſiſt in the water; and uſe has made a diſtinction even in the name; the one being called tortoiſes, the other turtles. However, Seba has proved that all tortoiſes are amphibious; that the land tortoiſe will live in the water; and that the ſea turtle can be fed upon land. A land tortoiſe was brought to him that was caught in one of the canals of Amſterdam, which he kept for half a year in his houſe, where it lived very well in both elements. When in the water it remained with its head above the ſurface; when placed in the ſun, it ſeemed delighted with its beams, and continued immoveable while it felt their warmth. The difference, therefore, in theſe animals, ariſes rather from their habits than their conformation. Beſides, upon examination, there will be leſs variety found between them than between birds that live upon land, and thoſe that ſwim upon the water.

All tortoiſes, in their external form, reſemble each other greatly; their outward covering being compoſed of two great ſhells, the one laid upon the other, and only touching at the edges. However, upon a cloſe inſpection, we ſhall find that the upper ſhell is compoſed of no leſs than thirteen pieces. There are two holes at either edge of this vaulted body; one for a very ſmall head, ſhoulders and arms, to peep through, the other at the oppoſite edge, for the feet and the tail. The animal is never diſengaged from theſe ſhells; and they ſerve for its defence againſt every creature but man.

The land tortoiſe is generally found, from one to five feet long, from the end of the ſnout to the end of the tail; and from five inches to a foot and an half acroſs the back. It has a ſmall head, ſomewhat like that of a ſerpent: an eye without the upper lid; the under eye-lid ſerving to cover and keep that organ in ſafety. It has a ſtrong, ſcaly tail, like the lizard. Its head it can ſhew and hide at pleaſure, under the great penthouſe of its ſhell. There it can remain ſecure from all attacks. As the tortoiſe lives wholly upon vegetable food, it never ſeeks the encounter; yet, if any of the ſmaller animals attempt to evade its repoſe, they are ſure to ſuffer. The tortoiſe, impregnably defended, is furniſhed with ſuch a ſtrength of jaw, that, though armed only with bony plates inſtead of teeth, wherever it faſtens, it infallibly keeps its hold, until it has taken out the piece.

Though peaceable in itſelf, it is formed for war in another reſpect, for it ſeems almoſt endued with immortality. Nothing can kill it; the depriving it of one of its members, is but a ſlight injury; it will live, though deprived of its head. Tortoiſes are commonly known to live above eighty years; and there was one kept in the Archbiſhop of Canterbury's garden at Lambeth, that was above an hundred and twenty. It was at laſt killed by the ſeverity of the froſt, from which it had not ſufficiently defended itſelf in its winter retreat, which was a heap of ſand, at the bottom of the garden.

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Though there is a circulation of blood in the tortoiſe, yet as the lungs are left out of the circulation, the animal not affected by it, can live without continuing to breathe. In this it reſembles the bat, the ſerpent, the mole, and the lizard. Like them too it takes up its dark reſidence for the winter; and in that ſeaſon, when its food is no longer in plenty, it luckily becomes inſenſible to the want. But it muſt not be ſuppoſed that, while it is thus at reſt, it totally diſcontinues to breathe. On the contrary, an animal of this kind, if put into a cloſe veſſel, without air, will ſoon be ſtifled; though not ſo readily as in a ſtate of vigour and activity.

The eggs of all the tortoiſe kind, like thoſe of birds, are furniſhed with a yolk and a white; but the ſhell is different, being ſomewhat like thoſe ſoft eggs that hens exclude before their time. This ſhell, however, is much thicker and ſtronger, and is a longer time in coming to maturity in the womb. The land tortoiſe lays but few in compariſon of the ſea turtle, that depoſits from an hundred and fifty to two hundred in a ſeaſon.

The amount of the land tortoiſe's eggs I have not been able to learn; but, from the ſcarceneſs of the animal, I am apt to think they cannot be very numerous. When it prepares to lay, the female ſcratches the earth a little, generally in a warm ſituation, where the beams of the ſun have their full effect. There depoſiting her eggs, and covering them with graſs and leaves, ſhe forſakes them, to be hatched by the heat of the ſeaſon. The young tortoiſes are generally excluded in about twenty-ſix days; but, as the heat of the weather aſſiſts, or its coldneſs retards incubation, ſometimes it happens that there is a difference of two or three days. The little animals no ſooner leave the egg, than they ſeek for their proviſion, entirely ſelf taught; and their ſhell, with which they are covered from the beginning, expands and grows larger with age. As it is compoſed of a variety of pieces, they are all capable of extenſion at their futures; and the ſhell admits increaſe in every direction.

It is common enough to take theſe animals into gardens, as they are thought to deſtroy inſects and ſnails in great abundance. We are even told, that, in hot countries, they are admitted into a domeſtic ſtate, as they are great deſtroyers of bugs.

The *Sea Tortoiſe*, or *Turtle*, as it is now called, is generally found larger than the former.

The Great Mediterranean Turtle is the largeſt of the turtle kind with which we are acquainted. It is found from five to eight feet long, and from ſix to nine hundred pounds weight; but, unluckily, its utility bears no proportion to its ſize, as it is unfit for food, and ſometimes poiſons thoſe who eat it. The ſhell alſo, which is a tough, ſtrong integument, like an hide, is uſeleſs. One of theſe animals was taken in the year 1729, at the mouth of the Loire, in nets that were deſigned for ſmaller fiſh. This turtle, which was of enormous ſtrength, by its own ſtruggles, involved itſelf in the nets, in ſuch a manner, as to be incapable of doing miſchief. Even thus ſhackled, it appeared terrible to the fiſhermen, who were at firſt diſpoſed to fly. Finding it impotent, however, they dragged it on ſhore, where it made a moſt horrible bellowing; and when they began to knock it on the head with their gaffs, it was heard at half a mile's diſtance. They were ſtill further intimida-

ted by its nauſeous and peſtilential breath, which ſo powerfully affected them, that they were near fainting. This animal wanted but four inches of being eight feet long, and was above two feet over. Its ſhell was more like leather than the ſhell of a tortoiſe; and, unlike all other animals of this kind, it was furniſhed with teeth in each jaw, one rank behind another, like thoſe of a ſhark. Its feet alſo, different from the reſt of this kind, wanted claws; and the tail was quite diſengaged from the ſhell, and fifteen inches long, more like that of a quadruped than that of a tortoiſe.

Theſe are a formidable and uſeleſs kind, if compared to the turtle caught in the South Seas and the Indian Ocean, which are not only unlike each other in form, but furniſh man with very different advantages. They are uſually diſtinguiſhed by ſailors into four kinds; the Trunk Turtle, the Loggerhead, the Hawkſbill, and the Green Turtle.

The Hawkſbill Turtle is the leaſt of the four, and has a long and ſmall mouth, ſomewhat like the bill of an hawk. The fleſh of this alſo is very indifferent; but the ſhell ſerves for the moſt valuable purpoſes. This is the animal that ſupplies the tortoiſe ſhell, of which ſuch a variety of beautiful trinkets are made.

But of all animals of the tortoiſe kind, the green turtle is the moſt noted, and the moſt valuable, from the delicacy of its fleſh, and its nutritive qualities, together with the property of being eaſily digeſted. It is generally found to be about two hundred weight; though ſome are five hundred, and others not above fifty.

This animal ſeldom comes from the ſea to depoſit its eggs, and now and then to ſport in freſh-water. Its chief food is a ſubmarine plant, that covers the bottom of ſeveral parts of the ſea not far from the ſhore. There, when the weather is fair, the turtles feed in great numbers, like flocks of ſheep, ſeveral fathoms deep upon the verdant carpet below. After this, they generally float with their heads above water, unleſs they are alarmed by the approach of huntſmen, or birds of prey; in which caſe, they ſuddenly plunge to the bottom.

When the time for laying approaches, the female is ſeen, towards ſun-ſet to draw near the ſhore, and to look earneſtly about her, as if afraid of being diſcovered. When ſhe perceives any perſon on ſhore, ſhe ſeeks for another place; but if not, ſhe lands when it is dark, and goes to take a ſurvey of the ſand where ſhe deſigns to lay. Having marked the ſpot, ſhe returns without laying, for that night, to the ocean; but next night goes back to depoſit a part of her burthen. She begins by working and digging in the ſand with her fore feet, till ſhe has made a round hole, a foot broad, and a foot and a half deep, juſt at the place a little above where the water reaches higheſt. This done, ſhe lays eighty or ninety eggs at a time, each as big as a hen's egg, and as round as a ball. She continues laying about the ſpace of an hour; during which time, if a cart were driven over her, ſhe would not be induced to ſtir. The eggs are covered with a tough, white ſkin, like wetted parchment. When ſhe has done laying, ſhe covers the hole ſo dexterouſly, that it is not eaſy to find the place. She now returns to the ſea, and leaves her eggs to be hatched by the heat of the ſun. At the end of fifteen days, ſhe lays about the ſame number of eggs again; and at the end of another fifteen days, ſhe repeats the

ſame;

ſame; three times in all, uſing the ſame precautions every time for their ſafety.

In about twenty-four or twenty-five days after laying, the eggs are hatched by the heat of the ſun; and the young turtles, being about as big as quails, are ſeen to burſt from the ſand, as if earth-born, and to run directly to the ſea, with inſtinct only for their guide. But, to their great misfortune, it often happens that, their ſtrength being ſmall, the ſurges of the ſea, for a few days, beat them back upon the ſhore. Thus expoſed, they remain a prey to thouſands of birds that haunt the coaſts, which ſtooping down upon them carry off the greateſt part, and ſometimes the whole brood, before they have ſtrength ſufficient to withſtand the waves, or to dive to the bottom. There are ſeveral ways contrived for taking theſe animals. One is, to ſeize them when coupled together, at the breeding ſeaſon, when they are very eaſily approached, and as eaſily ſeen.

Another way of taking them is by the harpoon, either when they are playing on the ſurface of the water, or feeding on the bottom. When this inſtrument is ſkilfully darted, it ſticks faſt in the ſhell of the back. The wood then diſengages from the iron, and the line is long enough for the animal to take its range; for if the harpooner ſhould attempt at once to draw the animal into his boat till it is weakened by its own ſtruggling, it would probably get free.

There is yet another which, though ſeemingly awkward, is ſaid to be attended with very great ſucceſs. A good diver places himſelf at the head of the boat; and when the turtles are obſerved, which they ſometimes are in great numbers, aſleep on the ſurface, he immediately quits the veſſel at about fifty yards diſtance, and keeping ſtill under water, directs his paſſage to where the turtle was ſeen, and coming up beneath, ſeizes it by the tail. The animal awaking, ſtruggles to get free; and by this both are kept at the ſurface until the boat arrive to take them in.

The ſhell of Teſtaceous Fiſhes.

The ſhell of teſtaceous fiſhes may be conſidered as an habitation ſupplied by nature. It is an hard ſtony ſubſtance, made up ſomewhat in the manner of a wall. The animal derives part of the ſtony ſubſtance from outward objects, and the fluids of the animal itſelf furniſh the cement. Theſe united, make that firm covering which ſhell fiſh generally reſide in till they die.

But, in order to give a more exact idea of the manner in which ſea-ſhells are formed, we muſt have recourſe to an animal that lives upon land, with the formation of whoſe ſhell we are beſt acquainted. This is the garden-ſnail, that carries its box upon its back.

To begin with the animal in its earlieſt ſtate, and to trace the progreſs of its ſhell from the time it firſt appears—The inſtant the young ſnail leaves the egg, it carries its ſhell or its box on its back. It does not leave the egg till it arrives at a certain growth, when its little habitation is ſufficiently hardened. This beginning of the ſhell is not much bigger than a pin's head, but grows very rapidly, having at firſt but two circumvolutions, for the reſt are added as the ſnail grows larger. In proportion as the animal increaſes in ſize, the circumvolutions of the ſhell increaſe alſo, until the number of thoſe volutes come to be five, which is never exceeded.

The

The part where the animal enlarges its ſhell is at the mouth, to which it adds in proportion as it finds itſelf ſtinted in its habitation below. Being about to enlarge its ſhell, it is ſeen with its little teeth biting and clearing away the ſcaly ſkin that grows at the edges. It is ſometimes ſeen to eat thoſe bits it thus takes off. At other times it only cleans away the margin when covered with films, and then adds another rim to its ſhell.

For the purpoſes of making the ſhell, which is natural to the animal, and without which it could not live three days, its whole body is furniſhed with glands, whoſe orifices emit a kind of ſlimy fluid, like ſmall ſpiders threads, which join together in one common cruſt or ſurface, and in time condenſe and acquire a ſtony hardneſs. It is this ſlimy humour that grows into a membrane and afterwards a ſtony ſkin. Nor can it have eſcaped any who have obſerved the track of a ſnail, that the gliſtening ſubſtance which it leaves on the floor or the wall is nothing but the materials with which the animal adds to its ſhell, or repairs it when broken.

With reſpect to the figure of ſhells, Ariſtotle has divided them into three kinds; and his method is the moſt conformable to nature. Theſe are, firſt, the univalve, or turbinated, which conſiſt of one piece, like the box of a ſnail. Secondly, the bivalve, conſiſting of two pieces, united by a hinge, like an oyſter; and thirdly, the multivalve, conſiſting of more than two pieces, as the acorn-ſhell, which has not leſs than twelve pieces in its compoſition. All theſe kinds are found in the ſea at different depths; and are valuable in proportion to their ſcarceneſs or beauty. All ſhells are formed of an animal or calcareous earth, that ferments with vinegar and other acids, and that burns into lime, but will not eaſily melt into glaſs.

Every ſhell, wherever it is found, is the ſpoil of ſome animal, that once found ſhelter therein. It matters not by what unaccountable means they may have wandered from the ſea; but they exhibit the moſt certain marks of their origin. From their numbers and ſituation, we are led to conjecture, that the ſea reached the places where they are found. From their varieties too we learn how little we know of all the ſea contains at preſent; as the earth furniſhes many kinds which our moſt exact and induſtrious ſhell-collectors have not been able to fiſh up from the deep.

To conceive the manner in which thoſe animals ſubſiſt that are hid from us at the bottom of the deep, we muſt again have recourſe to one of a ſimilar nature and formation, that we know, viz. the GARDEN-SNAIL. This creature is furniſhed with the organs of life in a manner almoſt as complete as the largeſt animal; with a tongue, brain, ſalival ducts, glands, nerves, ſtomach, and inteſtines; liver, heart and blood-veſſels. Beſides, it has a purple bag that furniſhes a red matter to different parts of the body together with ſtrong muſcles that hold it to the ſhell, and which are hardened, like tendons, at their inſertion.

But theſe it poſſeſſes in common with other animals. We muſt now ſee what it has peculiar to itſelf. The firſt ſtriking peculiarity is, that the animal has got its eyes on the points of its largeſt horns. When the ſnail is in motion, four horns are diſtinctly ſeen; but the two uppermoſt and longeſt deſerve particular conſideration, both on account of the various motions with which they are endued, and becauſe they have

have their eyes fixed at the extreme ends of them. This animal can direct its eyes by a regular motion out of the body; and ſometimes it hides them, by a very ſwift contraction into the belly. Under the ſmall horns is its mouth, which though it may appear too ſoft to be furniſhed with teeth, yet it has eight, with which it devours leaves, and other ſubſtances, ſeemingly harder than itſelf; and with which it ſometimes bites off pieces of its own ſhell.

Eighteen days after coition, the ſnails produce their eggs, and hide them in the earth with the greateſt ſolicitude and induſtry. Theſe eggs are in great numbers, round, white, and covered with a ſoft ſhell. They are alſo ſtuck to each other by an imperceptible ſlime, like a bunch of grapes, of about the ſize of a ſmall pea.

The ſnail is poſſeſſed not only of a power of retreating into its ſhell, but of mending it when broken. Sometimes theſe animals appear to be cruſhed to pieces; yet ſtill they ſet themſelves to work, and in a few days, mend all their numerous breaches. The ſame ſubſtance by which the ſhell is originally made, goes to repair the ruined habitation.

The ſnail ſubſiſts chiefly upon the leaves of plants and trees; but is very delicate in its choice. At the approach of winter, it buries itſelf in the earth, or retires to ſome hole, to continue in a torpid ſtate, during the ſeverity of the ſeaſon. It is ſometimes ſeen alone; but more frequently in company in its retreat; ſeveral being, for the moſt part, found together, apparently deprived of life and ſenſation. For the purpoſes of continuing in greater warmth and ſecurity, the ſnail forms a cover or lid to the mouth of its ſhell with its ſlime, which ſtops it up entirely, and thus protects it from every external danger. When the cover is formed too thick, the ſnail then breaks a little hole in it, which corrects the effect of that cloſeneſs, which proceeded from too much caution. In this manner, ſheltered in its hole from the weather, defended in its ſhell by a cover, it ſleeps during the winter; and, for ſix or ſeven months, continues without food or motion, until the genial call of ſpring breaks its ſlumber, and excites its activity.

The ſnail, having ſlept for ſo long a ſeaſon, awakes one of the firſt fine days of April; breaks open its cell, and ſallies forth in queſt of food. At firſt, almoſt any vegetable that is green, ſeems welcome; but the ſucculent plants of the garden are chiefly grateful; and the various kinds of pulſe are, at ſome ſeaſons, almoſt wholly deſtroyed by their numbers. A wet ſeaſon is generally favourable to their production; for this animal cannot bear very dry ſeaſons, or dry places, as they occaſion too great a conſumption of its ſlime, which robs it of its health and vigour.

Such are the moſt ſtriking particulars in the hiſtory of this animal; and this may ſerve as a general picture, to which the manners, and habitudes of the other tribes of this claſs may be compared and referred. 1. The ſea ſnail, of which naturaliſts have, from the apparent difference of their ſhells, mentioned fifteen kinds*. 2. The freſh water ſnail, of which there are eight kinds. 3. The land-ſnail, of which there are five. Theſe all bear a ſtrong reſemblance to the garden ſnail. All SNAILS THAT LIVE IN WATER, are peculiarly furniſhed with a contrivance by Nature, for riſing to the ſurface, or ſinking to the bottom. The manner in which this is performed, is by opening and ſhutting an orifice

* D'Argenville's Conchylioligie.

orifice on the right ſide of the neck, which is furniſhed with muſcles for that purpoſe. The ſnail ſometimes gathers this aperture into an oblong tube, and ſtretches it above the ſurface of the water, in order to draw in or expel the air, as it finds occaſion. This may not only be ſeen, but heard by the noiſe which the ſnail makes in moving the water. By dilating this the ſnail riſes; by compreſſing it, it ſinks to the bottom.

But what renders theſe animals far more worthy of notice is, that they are viviparous, and bring forth their young not only alive, but with their ſhells upon their backs. This ſeems ſurprizing; yet it is true. The young attain to ſome degree of perfection in the womb of the parent: there they receive their ſtony coat; and from thence are excluded, with a complete apparatus for ſubſiſtence.

This ſtriking difference between the freſh-water and the garden ſnail, obtains alſo in ſome of the SEA KIND; among which there are ſome that are found viviparous, while others lay eggs in the uſual manner. But this is not the only difference between land and ſea ſnails. Many of the latter are deſtitute of horns; and none of them have above two. Indeed, if the horns of ſnails be furniſhed with eyes, and if, as ſome think, the length of the horn, like the tube of a teleſcope, aſſiſts viſion, theſe animals, which reſide chiefly in the gloomy bottom of the deep, can have no great occaſion for them. Eyes would be unneceſſary to creatures whoſe food is uſually concealed in the darkeſt places; and which poſſeſſed of very little motion, are obliged to grope for what they ſubſiſt on. To ſuch, I ſay, eyes would rather be an obſtruction than an advantage; and perhaps even thoſe that live upon land are without them!

There is a difference alſo in the poſition of the mouth, in the garden and the water ſnail. In the former, the mouth is placed croſs-wiſe, as in quadrupeds; furniſhed with jaw-bones, lips and teeth. In moſt of the ſea-ſnails, the mouth is placed longitudinally in the head; and, in ſome, obliquely, or on one ſide. Others, of the trochus kind, have no mouth whatſoever; but are furniſhed with a trunk, very long in ſome kinds, and ſhorter in others.

Of all ſea ſnails, that which is moſt frequently ſeen upon the ſurface, and whoſe ſhell is the thinneſt and moſt eaſily pierced, is the NAUTILUS. Whether, upon theſe occaſions, it is employed in eſcaping its numerous enemies at the bottom, or ſeeking for food, I will not venture to decide. The former conjecture, however, ſeems to be the moſt probable; for, upon opening its ſtomach, it is found to contain chiefly that food which it finds at the bottom.

Although there are ſeveral ſpecies of the nautilus, yet they may all be divided into two: the one with a white ſhell, as thin as paper, which it is often ſeen to quit, and again to reſume; the other with a thicker ſhell, ſometimes of a beautiful mother-of-pearl colour, and which quits its ſhell but rarely. This ſhell outwardly reſembles that of a large ſnail, but is generally ſix or eight inches acroſs. Within, it is divided into forty partitions, that communicate with each other by doors, if I may ſo call them, through which one could not thruſt a gooſe-quill. Almoſt the whole internal part of the ſhell is filled by the animal, the body of which, like its habitation, is divided into as many parts as there are chambers in its ſhell. All the parts of its body communicate

municate with each other, through the doors or openings, by a long blood veſſel, which runs from the head to the tail. Hence the body of the animal, if taken out of the ſhell, may be compared to a number of ſoft bits of fleſh, of which there are forty, threaded upon a ſtring. From this extraordinary conformation, one would not be apt to ſuppoſe that the nautilus ſometimes quitted its ſhell, and returned to it again; yet nothing, though ſeemingly impoſſible, is more certain. The manner by which it contrives to diſengage every part of its body from ſo intricate an habitation; by which it makes a ſubſtance, to appearance as thick as one's wriſt, paſs through forty doors, each of which would ſcarcely admit a gooſe quill, is not yet diſcovered. The fact, however, is certain; for the animal is often found without its ſhell; and the ſhell is more frequently without the animal. It is moſt probable, that it has a power of making the ſubſtance of one ſection of its body remove up into that which is next; and thus, by multiplied removals, it extricates itſelf.

But this is not the peculiarity for which the nautilus has been moſt diſtinguiſhed. Its ſpreading the thin oar, and catching the flying gale, to uſe the poet's deſcription of it, has chiefly excited human curioſity. Theſe animals, particularly thoſe of the white, light kind, are chiefly found in the Mediterranean; and ſcarce any who have ſailed on that ſea, but muſt have ſeen them. When the ſea is calm, they are obſerved floating on the ſurface; ſome ſpreading their little ſail; ſome rowing with their feet, and others ſtill, floating upon their mouths, like a ſhip with the keel upward. If taken while thus employed, and examined, the extraordinary mechaniſm of their limbs for ſailing will appear more manifeſt. The nautilus is furniſhed with eight feet, which iſſue near the mouth, and may as properly be called barbs. Theſe are connected to each other by a thin ſkin, like that between the toes of a duck, but much thinner and more tranſparent. Of theſe eight feet thus connected, ſix are ſhort, and theſe are held up as ſails to catch the wind in ſailing. The two others are longer, and are kept in the water; ſerving, like paddles, to ſteer their courſe by. When the weather is quite calm, and the animal is purſued from below, it is then ſeen expanding only a part of its ſail, and rowing with the reſt. Whenever it is interrupted, or fears danger from above, it inſtantly furls the ſail, catches in all its oars, turns its ſhell mouth downward, and inſtantly ſinks to the bottom. Sometimes alſo it is ſeen pumping the water from its leaking hulk; and, when unfit for ſailing abandons its ſhell entirely. The forſaken hulk is ſeen floating along, till it daſhes, by a kind of ſhipwreck, upon the rocks or the ſhore.

It may ſeem whimſical to make a diſtinction between the animal perfections of turbinated and BIVALVED SHELL-FISH, or to place the ſnail above the oyſter. Yet this diſtinction ſtrongly and apparently obtains in nature; and we ſhall find the bivalved tribe of animals in every reſpect inferior to thoſe we have been deſcribing.

The Muſcle.

The muſcle, as is well known, whether belonging to freſh or ſalt-water, conſiſts of two equal ſhells, joined at the back by a ſtrong muſcular ligament that anſwers all the purpoſes of an hinge. By the elaſtic contraction of theſe, the animal can open its ſhells at pleaſure, about a quarter of an inch from each other. The fiſh is fixed to either

ſhell by four tendons, by which it ſhuts them cloſe, and keeps its body firm from being cruſhed by any ſhock againſt the walls of its own habitation. It is furniſhed, like all other animals of this kind, with vital organs, though theſe are ſituated in a very extraordinary manner. It has a mouth furniſhed with two fleſhy lips. Its inteſtine begins at the bottom of the mouth, paſſes through the heart, which it penetrates, and ends in the anus; near which the lungs are placed, and through which it breathes, like thoſe of the ſnail kind. In this manner, therefore, its languid circulation is carried on*.

The multitude of theſe animals in ſome places is very great; but from their defenceleſs ſtate, the number of their deſtroyers is not inferior.

But notwithſtanding the number of this creatures animated enemies, it ſeems ſtill more fearful of the agitations of the element in which it reſides; for if daſhed againſt rocks, or thrown far on the beach, it is deſtroyed without a power of redreſs. In order to guard againſt theſe, which are to this animal the moſt common and the moſt fatal accidents, although it has a power of ſlow motion, which I ſhall preſently deſcribe, yet it endeavours to become ſtationary, and to attach itſelf to any fixed object it happens to be near. For this purpoſe it is furniſhed with a very ſingular capacity of binding itſelf by a number of threads to whatever object it approaches; and theſe Reumur ſuppoſed it ſpun artificially, as ſpiders do their webs which they faſten againſt a wall. Of this, however, later philoſophers have found very great reaſon to doubt. It is therefore ſuppoſed that theſe threads, which are uſually called the beard of the muſcle, are the natural growth of the animal's body, and by no means produced at pleaſure.

Its inſtrument of motion, by which it contrives to reach the object it wiſhes to bind itſelf to, is that muſcular ſubſtance reſembling a tongue, which is found long in proportion to the ſize of the muſcle. In ſome it is two inches long, in others not a third part of theſe dimenſions. This the animal has a power of thruſting out of its ſhell; and with this it is capable of making a ſlight furrow in the ſand at the bottom. By means of this furrow it can erect itſelf upon the edge of its ſhell. And thus continuing to make the furrow in proportion as it goes forward, it reaches out its tongue, that anſwers the purpoſe of an arm, and carries its ſhell edge-ways, as in a groove, until it reach the point intended. Where it determines to take up its reſidence it fixes the ends of its beard, which are glutinous, to the rock or the object, whatever it be; and thus, like a ſhip at anchor, braves all the agitations of the water. I have ſeen the beards a foot and an half long; and of this ſubſtance the natives of Palermo ſometimes make gloves and ſtockings.

Theſe ſhell-fiſh are found in lakes, in rivers, and in the ſea. Thoſe of the lake often grow to a very large ſize; but they ſeem a ſolitary animal. Thoſe of rivers are not ſo large, but are in greater abundance. The ſea muſcles, however, are the moſt numerous. Theſe are often bred artificially in ſalt water marſhes that are overflowed by the tide; the fiſhermen throwing them in at the proper ſeaſons. Undiſturbed too by the agitations of the ſea, and not preyed upon by their powerful enemies at the bottom, they caſt their eggs, which ſoon become perfect animals, and are generally found in cluſters of ſeveral dozen together.

* M. Mery. Ant. des Moules d'Etang.

together. It requires a year for the peopling a muſcle-bed. If the number, therefore, conſiſt of forty thouſand, a tenth part may annually be left for the peopling the bed anew. Muſcles are taken from their beds from the month of July to October; and they are ſold at a very moderate price.

The Oyſter.

From this animal the oyſter differs very little, except in the thickneſs of its ſhell, and its greater imbecility. The oyſter, like the muſcle, is formed with organs of life and reſpiration, with inteſtines which are very voluminous, a liver, lungs, and heart. Like the muſcle, it is ſelf-impregnated; and the ſhell, which the animal ſoon acquires, ſerves it for its future habitation. Like the muſcle, it opens its ſhell to receive the influx of water, and like that animal, it is ſtrongly attached to its ſhells both above and below.

The oyſter differs from the muſcle in being quite unable to change its ſituation. It has not the tongue, which ſupplies the defect of an arm in the muſcle, nevertheleſs it often attaches itſelf very firmly to any object it happens to approach. Nothing is ſo common in the rivers of the tropical climates as to ſee oyſters growing even amidſt the branches of the foreſt. Many trees which grow along the banks of the ſtream often bend their branches into the water, and particularly the mangrove, which delights in a moiſt ſituation. To theſe the oyſters, hang in cluſters, like apples upon the moſt fertile tree. In proportion too as the weight of the fiſh ſinks the plant into the water, where it ſtill continues growing, the number of oyſters increaſe, and hang upon the branches. This is effected by means of a glue proper to themſelves, which, when it cements, the joining is as hard as the ſhell, and as difficult to break.

Oyſters uſually caſt their ſpawn in May, which at firſt appears like drops of candle-greaſe, and ſticks to any hard ſubſtance it falls upon. Theſe are covered with a ſhell in two or three days; and in three years the animal is large enough to be brought to market. As they invariably remain in the places where they are laid, and as they grow without any other ſeeming food than the afflux of ſea-water, it is the cuſtom at Colcheſter, and other parts of the kingdom, where the tide ſettles in marſhes on land, to pick up great quantities of ſmall oyſters along the ſhore, which when firſt gathered ſeldom exceed the ſize of a ſixpence. Theſe are depoſited in beds where the tide comes in, and in two or three years they grow to a tolerable ſize. A mixture of freſh water entering into theſe repoſitories, is ſaid to improve their flavour, and to increaſe their growth and fatneſs.

The oyſters, however, which are prepared in this manner, are not ſo large as thoſe found ſticking to rocks at the bottom of the ſea, uſually called rock-oyſters. Theſe are ſometimes found as broad as a plate, and are admired by ſome as excellent food. But what is the ſize of theſe compared to the oyſters of the Eaſt Indies, ſome of whoſe ſhells I have ſeen two feet over! The oyſters found along the coaſt of Coromandel are capable of furniſhing a plentiful meal to eight or ten men; but it is agreed on all hands that they are no way equal to ours for delicacy or flavour.

Thus the muſcle and the oyſter appear to have but few diſtinctions, except in their ſhape, and the power of motion in the former. Other

bivalved ſhell-fiſh, ſuch as the COCKLE, the SCALLOP, and the RAZOR-ſhell, have differences equally minute. The power of changing place, which ſome of them effect in a manner quite peculiar to themſelves, conſtitutes their greateſt difference. The *ſcallop* is particularly remarkable for its method of moving forward upon land, or ſwimming upon the ſurface of the water. When this animal finds itſelf left by the tide, it makes very remarkable efforts to regain the water, moving towards the ſea in a moſt ſingular manner. It firſt gapes with its ſhell as wide as it can, then it ſhuts them with a jerk, which makes it bound five or ſix inches from the ground. It then tumbles any how forward, and renews the operation until it has reached its journey's end. In the water it is capable of ſupporting itſelf upon the ſurface; and by opening and ſhutting its ſhell, it tumbles over and over, and makes its way pretty well.

The Pivot, or Razor-ſhell.

The pivot, or razor-ſhell, has a very different kind of motion. As the former moves laborioufly and ſlowly forward, ſo the razor ſhell has only a power of ſinking downward. The ſhells of this animal reſemble nothing ſo much as the haft of a razor; and by this form it is enabled to dive into the ſoft ſand at the bottom. All the motions of this little animal are confined to ſinking or riſing a foot downwards or upwards in the ſand, for it never leaves the ſpot where it was firſt planted. From time to time it is ſeen to riſe about half way out of its hole; but if diſturbed, it ſinks perpendicularly down again. Juſt over the place where the razor buries itſelf, there is a ſmall hole like a chimney, through which the animal breathes, or imbibes the ſea-water. Upon the ebbing of the tide, theſe holes are eaſily diſtinguiſhed by the fiſhermen who entice the razor up from the depth of its retreat, by ſprinkling a little ſea-ſalt upon the hole. This melting, no ſooner reaches the razor below, than it riſes inſtantly ſtraight upwards, and ſhews about half its length above the ſurface. This appearance, however, is inſtantaneous; and if the fiſher does not ſeize the opportunity, the razor deſcends immediately to its former depth. There it continus ſecure; no ſalt can allure it a ſecond time; but it remains unmoleſted, unleſs the fiſher will be at the trouble of digging it out ſometimes two feet below the ſurface.

Such are the minute differences between bivalved ſhell-fiſh; but in the great out-lines of their nature, they exactly reſemble each other. It is particularly in this claſs of ſhell-fiſh that pearls are found in greateſt abundance. The pearl ſeems bred from no diſorder in the animal, but accidentally produced by the ſame matter that forms the ſhell. This ſubſtance, which is ſoft at firſt, quickly hardens; and thus, by ſucceſſive coats, layer over layer, the pearl acquires its demenſions. If cut through, it will be found to conſiſt of ſeveral coats, like an onion; and ſometimes a ſmall ſpeck is ſeen in the middle, upon which the coats were originally formed.

All oyſters, and moſt ſhell-fiſh, are found to contain pearls; but that which particularly obtains the name of the pearl oyſter, has a large ſtrong whitiſh ſhell, wrinkled and rough without, but ſmooth within, and of a ſilver colour. From theſe the mother-of pearl is taken, which is nothing more than the internal coats of the ſhell, reſembling the pearl in colour and conſiſtence. There are a great number of pearl

fiſheries

fiſheries in America and Aſia. The chief of which is carried on in the Perſian Gulph.

The wretched people that are deſtined to fiſh for pearls, are either Negroes, or ſome of the pooreſt of the natives of Perſia. The divers are not only ſubject to the dangers of the deep, to tempeſts, to ſuffocation at the bottom, or being devoured by ſharks, but from their profeſſion univerſally labour under a ſpitting of blood, occaſioned by the preſſure of air upon their lungs in going down to the bottom. The moſt robuſt and healthy young men are choſen for this employment, but they ſeldom ſurvive it above five or ſix years. Their fibres become rigid; their eye-balls turn red; and they uſually die conſumptive.

It is amazing how very long they continue at the bottom. Some, as we are aſſured, have been three quarters of an hour under water without breathing; and to one unuſed to diving, ten minutes would ſuffocate the ſtrongeſt. They fiſh for pearls, or rather for the oyſters that contain them, in boats twenty eight feet long; and of theſe there are ſometimes three or four hundred at a time, with each ſeven or eight ſtones, which ſerve for anchors. From five to eight divers belong to each, that dive one after another. They are quite naked, except that they have a net hanging down from the neck to put their oyſters in, and gloves on their hands to defend them while they pick the oyſters from the holes in the rocks. Every diver is ſunk by means of a ſtone, weighing fifty pounds, tied to the rope by which he deſcends. He places his foot in a kind of ſtirrup, and laying hold of a rope with his left-hand, with his right he ſtops his noſe to keep in his breath. They are no ſooner come to the bottom, but they give the ſignal to thoſe who are in the boat to draw up the ſtone; which done, they go to work, filling their net as faſt as they can; and then giving another ſignal, the boats above pull up the net loaded with oyſters, and ſhortly after the diver himſelf, to take a freſh inſpiration. They dive to the depth of fifteen fathoms, but ſeldom deeper. They generally go every morning by break of day to this fatiguing employment, taking the land-wind to waft them out to ſea, and returning with the ſea breeze at night. The owners of the boats uſually hire the divers, and the reſt of the boats crew, as we do our labourers, at ſo much a day. All the oyſters are brought on ſhore, where they are laid in a great heap till the pearl fiſhery is over, which continues during the months of November and December. When opportunity ſerves, they examine every oyſter, and it ſometimes happens that the booty does not compenſate their trouble. Indeed, none can wiſh well to a commerce, which thus chains ſuch a number of fellow creatures to the bottom, to pluck up a mouldering pebble.

Multivalve Shell-Fiſh.

Multivalve ſhell fiſh may be conſidered as animals ſhut up in round boxes. Of theſe there are principally two kinds; ſuch as move, and ſuch as are ſtationary. The firſt are uſually known in our cabinets by the name of ſea-eggs: the others are often admired, from the cavities which they ſcoop out for their habitation in the hardeſt marble. The firſt are called, by naturaliſts, Echini, or Urchins. The latter are named Pholades, or File Fiſh.

The Sea-urchin.

Upon a ſlight view, the Sea urchin may be compared to the huſk of a cheſnut; being like it round, and having a number of bony prickles

kles ſtanding out on every ſide. The mouth is placed downwards: the vent is above: the ſhell is a hollow vaſe, reſembling a ſcooped apple. This too is filled with a ſoft, muſcular ſubſtance, through which the inteſtines wind from the bottom to the top. The mouth, which is placed undermoſt, is large and red, furniſhed with five ſharp teeth, which are eaſily diſcerned. The jaws are ſtrengthened by five ſmall bones, in the centre of which is a ſmall fleſhy tongue. From this tongue the inteſtines make a winding of five ſpires, round the internal ſides of the ſhell, ending at top, where the excrements are voided. But the moſt extraordinary part of this animal's conformation, are its horns and its ſpines, that point from every part of the body, like the horns of a ſnail, and that ſerve at once as legs to move upon, as arms to feel with, and as inſtruments with which it can both ſeize upon its prey and defend itſelf. Between theſe horns it has alſo ſpines that are not endued with ſuch a ſhare of motion. The ſpines and the horns iſſue from every part of its body; the ſpines being hard and prickly; the horns being ſoft, longer than the ſpines, and never ſeen except in the water. They are put forward and withdrawn like the horns of a ſnail, and are hid at the baſis of the ſpines, and not only ſerve to procure food, but aſſiſt the animal in its motion. All this apparatus, however, is only ſeen when the animal is hunting its prey at the bottom of the water; for a few minutes after it is taken, all the horns are withdrawn into the body, and moſt of the ſpines drop off.

It is generally ſaid of inſects, that thoſe which have the greateſt number of legs, always move ſloweſt. This animal however, ſeems to be an exception to the rule; for though furniſhed with two thouſand ſpines, and twelve hundred horns, all ſerving for legs, and from their number ſeeming to impede each other's motion, yet it runs with ſome ſhare of ſwiftneſs at the bottom, and it is ſometimes pretty difficult to overtake it. It is often taken upon the ebb, by following it in ſhallow water, either in an ozier baſket, or ſimply with the hand. Both the ſpines and the horns aſſiſt its motion; and the animal is uſually ſeen running with the mouth downward.

Some kinds of this animal are as palatable as the lobſter; and its eggs, which are of a very deep red, are conſidered as a very great delicacy. But of the others the taſte is but indifferent; and in all places, except the Mediterranean, they are little ſought for, except as objects of curioſity.

Very different in motion, though not much different in ſhape from theſe are the ACORN Shell-fiſh, the THUMB-FOOTED Shell-fiſh, and the IMAGINARY BARNACLE. Theſe are fixed to one ſpot, and appear to vegetate from a ſtalk. Indeed, to an inattentive ſpectator, each actually ſeems to be a kind of fungus that grows in the deep, deſtitute of animal life as well as motion. But the inquirer will ſoon change his opinion, when he comes to obſerve this muſhroom-like figure more minutely. He will then ſee that the animal reſiding within the ſhell has not only life, but ſome degree of voraciouſneſs. They are ſeen adhering to every ſubſtance that is to be met with in the ocean; rocks, roots of trees, bottoms of ſhips, whales, lobſters, and even crabs; like bunches of grapes, clung to each other. It is amuſing enough to behold their operations*. They for ſome time remain motionleſs within their ſhell; but when the ſea is calm, they are ſeen opening the lid, and peeping

* Anderſon's Hiſtory of England.

peeping about them. They then thruſt out their long neck, look round them for ſome time, and then abruptly retreat back into their box, ſhut their lid, and lurk in darkneſs and ſecurity. Some people eat them; but they are in no great repute at the tables of the luxurious.

Of all animals of the ſhelly tribe, the PHOLADES are the moſt wonderful. They are found in different places; ſometimes clothed in their proper ſhell, at the bottom of the water; ſometimes concealed in lumps of marly earth; and ſometimes lodged in their ſhell, in the hardeſt marble. In their proper ſhell they aſſume different figures; but, in general, they ſomewhat reſemble a muſcle, except that their ſhell is found actually compoſed of five or more pieces, the ſmaller valves ſerving to cloſe up the openings left by the irregular meeting of the two principal ſhells. But the circumſtance of their penetrating into rocks and reſiding in them is the moſt wonderful part of their hiſtory.

This animal, when diveſted of its ſhell, reſembles a roundiſh, ſoft pudding, with no inſtrument that ſeems in the leaſt fitted for boring into ſtones, or even penetrating the ſofteſt ſubſtance. It is furniſhed with two teeth indeed; but theſe are placed in ſuch a ſituation as to be incapable of touching the hollow ſurface of its ſtony dwelling. It has alſo two covers to its ſhell, that open and ſhut at either end; but theſe are totally unſerviceable to it as a miner. The inſtrument with which it performs all its operations, and buries itſelf in the hardeſt rocks, is only a broad fleſhy ſubſtance, ſomewhat like a tongue, that is ſeen to iſſue from the bottom of its ſhell. With this ſoft, yielding inſtrument, it perforates the moſt ſolid marbles; and having, while yet little and young, made its way, by a very narrow entrance into the ſubſtance of the ſtone, it then begins to grow and to enlarge its apartment.

When it has buried its body in a ſtone, it there continues for life, at its eaſe; the ſea-water that enters at the little aperture furniſhing it with enough of ſubſiſtence. When the animal has taken too great a quantity of water, it is ſeen to ſpurt it out of its hole with ſome violence. Upon this ſeemingly thin diet, it quickly grows larger, and ſoon finds itſelf under a neceſſity of enlarging its habitation and its ſhell. The motion of the pholas is extremely ſlow. Its progreſs keeps pace with the growth of its body; and, in proportion as it becomes larger, it makes its way farther into the rock. When it has got a certain way in, it then turns from its former direction, and hollows downward; till, at laſt, when its habitation is completed, the whole apartment reſembles the hole of a tobacco-pipe; the hole in the ſhank being that by which the animal entered.

But they are not ſupplied only with their rocky habitation: they have alſo a ſhell to protect them. This ſhell grows upon them in the body of the rock, and ſeems a very unneceſſary addition to their defence, which they have procured by art. Theſe ſhells take different forms, and are often compoſed of a different number of valves; ſometimes ſix; ſometimes but three. Sometimes too the ſhell reſembles a tube with holes at either end, one for the mouth, and the other for voiding the excrement.

Theſe animals are moſt numerous at Ancona in Italy; they are found along the ſhores of Normandy and Poitou, in France; and alſo upon ſome of the coaſts of Scotland. In general they are conſidered as a very great delicacy, at the tables of the luxurious.

CHAP.

CHAP. XXXIII.

OF AMPHIBIOUS ANIMALS—THE FROG—THE TOAD—VARIETIES—SURINAM TOAD—OF LIZARDS—THE CROCODILE AND ALLIGATOR—THE OPEN-BELLIED CROCODILE—SALAMANDER—THE CORDYLE, &c.—THE IGUANA—THE CAMELEON—THE DRAGON—THE CHALCIDIAN LIZARD.

IF we emerge from the deep, the firſt and moſt obvious claſs of amphibious animals that occur upon land are frogs and toads.

To deſcribe the form of animals ſo well known would be ſuperfluous; to mark thoſe differences that diſtinguiſh them from each other may be neceſſary. The frog moves by leaping: its colour is brighter, and of a more poliſhed ſurface: the toad is brown, rough, and duſty. The frog is light and active, and its belly comparatively ſmall. The toad, on the other hand, is ſlow, ſwollen, and incapable of eſcape. The frog, when taken, contracts itſelf ſo as to have a lump on its back: the toad's back is ſtraight and even. Their habitudes and manners exhibit a greater variety and require a ſeparate deſcription.

The external figure of the FROG is too well known to need a deſcription. Its power of taking large leaps is remarkably great, compared to the bulk of its body. It is the beſt ſwimmer too of all four-footed animals.

If we examine this animal internally, we ſhall find that it has very little brain for its ſize; a very wide ſwallow; a ſtomach ſeemingly ſmall, but capable of great diſtenſion. The heart in the frog, as in all other animals that are truly amphibious, has but one ventricle. Hence the blood can circulate without the aſſiſtance of the lungs, while it keeps under water. The lungs reſemble a number of ſmall bladders joined together, like the cells of a honey-comb. They are connected to the back by muſcles, and can be diſtended or exhauſted at the animal's pleaſure. Neither male nor female have any of the external inſtruments of generation; the anus ſerving for that purpoſe in both. Such are the moſt ſtriking peculiarities in the anatomy of a frog; and in theſe it agrees with the toad, the lizard, and the ſerpent.

The female is impregnated neither by the mouth, as ſome philoſophers imagine, nor by the excreſcence at the thumbs, according to Linnæus, but by the inſpertion of the male ſeminal fluid upon the eggs as they proceed from the body.

A ſingle female produces from ſix to eleven hundred eggs at a time. Beſides ſhe, for the moſt part, throws them all out together by a ſingle effort; though ſometimes ſhe is an hour in performing this taſk.

When the ſpawn is emitted and impregnated by the male, it drops to the bottom. The eggs, which during the four firſt hours ſuffer no perceptible change, begin then to enlarge and grow lighter; by which means they mount to the ſurface of the water. On the twenty-firſt day the egg is ſeen to open a little on one ſide, and the beginning of a tail to peep out, which becomes more and more diſtinct every day. The thirty-ninth day the little animal begins to have motion. It moves at intervals its tail; and it is perceived that the liquor in which it is circumfuſed, ſerves it for nouriſhment. In two days more, ſome of theſe little creatures fall to the bottom, while others remain ſwimming in

in the fluid round them. In the mean time, their vivacity and motion is ſeen to increaſe. Thoſe which fall to the bottom remain there the whole day. Having lengthened themſelves however, a little, for hitherto they are doubled up, they mount at intervals to the mucus, which they had quitted, and feed upon it with great vivacity. The next day they acquire their tadpole form. In three days more they are perceived to have two little fringes, that ſerve as fins beneath the head, which in four days after aſſume a more perfect form. It is then alſo that they feed very greedily upon the pond-weed. When ninety-two days old, two ſmall feet begin to burgeon near the tail; and the head appears to be ſeparate from the body. In five days after this they refuſe all vegetable food: their mouth appears furniſhed with teeth; and their hinder legs are completely formed. In two days more the arms are completely produced. In this ſtate it continues for about ſix or eight hours; and then the tail dropping off by degrees, the animal appears in its moſt perfect form.

The frog, therefore, in leſs than a day, having changed its figure, is ſeen to change its appetites alſo. As ſoon as the animal acquires its perfect ſtate, from having fed upon vegetables it becomes carnivorous, and lives entirely upon worms and inſects. But as the water cannot ſupply theſe, it is obliged to quit its native element, and to ſeek for food upon land, where it lives by hunting worms and taking inſects by ſurpriſe.

The frog lives for the moſt part out of the water; but when the cold nights begin to ſet in, it returns to its native element, always chuſing ſtagnant waters, where it can lie concealed at the bottom. In this manner it continues torpid, or with but very little motion, all the winter. Like the reſt of the dormant race, it requires no food; and the circulation is ſlowly carried on without any aſſiſtance from the air.

The difference of ſexes, is not perceivable in theſe animals, until they have arrived at their fourth year; nor do they begin to propagate, till they have completed that period. By comparing their ſlow growth with their other habitudes, it would appear, that they live about twelve years; but having ſo many enemies, both by land and water, it is probable that few of them arrive at the end of their term.

Frogs live upon inſects of all kinds; but they never eat any, unleſs they have motion. They continue fixed and immoveable till their prey appears; and juſt when it comes ſufficiently near, they jump forward with great agility, dart out their tongues, and ſeize it with certainty. The tongue in this animal, as in the toad, lizard and ſerpent kinds, is extremely long, and formed in ſuch a manner that it ſwallows the point down its throat. A length of tongue is therefore drawn out, like a ſword from its ſcabbard, to aſſail its prey. This tongue is furniſhed with a glutinous ſubſtance; and whatever inſect it touches, infallibly adheres, and is thus held faſt till it is drawn into the mouth.

The croaking of frogs is well known; whence in ſome countries, they are diſtinguiſhed by the ludicrous title of Dutch Nightingales. The large water frogs have a note as loud as the bellowing of a bull; and, for this purpoſe, puff up their cheeks to a ſurpriſing ſize. Of all frogs, however, the male only croaks; the female is ſilent. Before wet weather, their voices are in full exertion. They then ſend forth their call inceſſantly, and welcome the approach of their favourite moiſture. No weather-glaſs was ever ſo true as a frog in foretelling an ap-

proaching change. This may probably ſerve to explain an opinion which ſome entertain, that there is a month in the year, called Paddock Moon, in which the frogs never croak. The whole ſeems to be no more than that, in the hot ſeaſon, when the moiſture is dried up, and conſequently when theſe animals neither enjoy the quantity of health nor food that at other times they are ſupplied with, they ſhew, by their ſilence, how much they are diſpleaſed with the weather.

Frogs adhere cloſely to the backs of their own ſpecies, and it has been found, that they will alſo adhere to the backs of fiſhes. Few that have ponds, but know that theſe animals will ſtick to the backs of carp, and fix their fingers in the corner of each eye. In this manner they are often caught together; the carp being blinded and waſted away.

The Toad.

If we regard the figure of the toad, there ſeems nothing in it that ſhould diſguſt more than that of the frog. Its form and proportions are nearly the ſame; and it chiefly differs in being of a blacker colour, and having a ſlow and heavy motion, which exhibits nothing of the agility of the frog. Such, however, is the force of habit, begun in early prejudice, that thoſe who conſider the one as an harmleſs, playful animal, turn from the other with horror and diſguſt. The frog is conſidered as a uſeful aſſiſtant, in ridding our grounds of vermin; the toad, as a ſecret enemy, that only waits an opportunity to infect us with its venom.

As the toad bears a general reſemblance in figure to the frog, ſo it reſembles that animal in its nature and appetites. When like the frog, theſe animals have undergone all the variations of their tadpole ſtate, they forſake the water, and are often ſeen, in a moiſt ſummer evening, crawling up, by myriads, from fenny places, into drier ſituations. There, having found out a retreat, or having dug themſelves one, they lead a patient ſolitary life, ſeldom venturing out, except when the moiſture of a ſummer's evening invites them abroad. At that time the graſs is filled with ſnails, and the pathways covered with worms, which are their principal food. They are alſo fond of inſects; and according to Linnæus, they ſometimes continue immoveable, with the mouth open, at the bottom of ſhrubs, where the butterflies, in ſome meaſure facinated, are ſeen to fly down their throats.

In a letter from Mr Arſcott, there are ſome curious particulars reſpecting this animal, which throws great light upon its hiſtory. "Concerning the toad," ſays he, "that lived ſo many years with us, and was ſo great a favourite, the greateſt curioſity was its becoming ſo remarkably tame. It had frequented ſome ſteps before our hall door ſome years before my acquaintance commenced with it, and had been admired by my father for its ſize (being the largeſt I ever met with) who conſtantly paid it a viſit every evening. I knew it myſelf above thirty years; and by conſtantly feeding it, brought it to be ſo tame, that it always came to the candle and looked up, as if expecting to be taken upon the table, where I always fed it with inſects of all ſorts. It was fondeſt of fleſh maggots, which I kept in bran. It would follow them, and would fix its eyes and remain motionleſs, for near a quarter of a minute, as if preparing for the ſtroke, which was an inſtantaneous throwing of its tongue at a great diſtance upon the inſect, which ſtuck to the tip by a glutinous matter. The motion is quicker

than

than the eye can follow. I cannot ſay how long my father had been acquainted with the toad, before I knew it, but when I was firſt acquainted with it, he uſed to mention it as the old toad I have known ſo many years. I can anſwer for thirty-ſix years. This old toad made its appearance as ſoon as the warm weather came; and I always concluded it retired to ſome dry bank, to repoſe till ſpring. When we new laid the ſteps, I had two holes made in the third ſtep, in which I imagine it ſlept, as it came thence at its firſt appearance. It was ſeldom provoked. Neither that toad, nor the multitudes I have ſeen tormented with great cruelty, ever ſhewed the leaſt deſire of revenge, by ſpitting or emitting any juice from their pimples. Sometimes, upon taking it up, it would let out a great quantity of clear water, which as I have often ſeen it do the ſame upon the ſteps when quiet, was certainly its urine, and no more than a natural evacuation. Spiders, millepedes, and fleſh maggots, ſeem to be this animal's favourite food. I imagine if a bee was to be put before a toad, it would certainly eat it*. As bees, however, are ſeldom ſtirring at the ſame time that toads are, they rarely come in their way; for they do not appear after ſun-riſing, or before ſun-ſet. In the heat of the day they will come to the mouth of their hole, I believe for air. I once, from my parlour window, obſerved a large toad I had in the bank of a bowling-green, about twelve at noon, a very hot day, very buſy and active upon the graſs. So uncommon an appearance made me go out to ſee what it was. I then found an innumerable ſwarm of winged ants had dropped round his hole; which temptation was as irreſiſtible as a turtle would be to a luxurious alderman. In reſpect to its end, had it not been for a tame raven, I make no doubt but it would have been ſtill living. This bird, one day ſeeing it at the mouth of its hole, pulled it out, and, although I reſcued it, the raven injured it ſo that it died a twelve month after. Before that accident, it had all the appearance of perfect health." The toad, contrary to vulgar prejudice, is an harmleſs, defenceleſs creature, torpid and unvenomous, and ſeeking the darkeſt retreats, not from the malignity of its nature, but the multitude of its enemies.

Like all of the frog kind, the toad is torpid in winter. It chuſes then for a retreat either the hollow root of a tree, the cleft of a rock, or ſometimes the bottom of a pond, where it is found in a ſtate of ſeeming inſenſibility. As it is very long-lived, it is very difficult to be killed. Its ſkin is tough, and cannot be eaſily pierced; and, though covered with wounds, the animal continues to ſhew ſigns of life, and every part appears in motion. But what ſhall we ſay to its living for centuries lodged in the boſom of a rock, or caſed within the body of an oak tree, without the ſmalleſt acceſs on any ſide, either for nouriſhment or air, and yet taken out alive and perfect! Stories of this kind it would be as raſh to contradict as difficult to believe. We have the higheſt authorities bearing witneſs to their truth, and yet the whole analogy of nature ſeems to arraign them of falſehood. Bacon aſſerts that toads are found in this manner; Doctor Plot aſſerts the ſame; there is to this day a marble chimney-piece at Chatſworth with the print of the toad upon it, and a tradition of the manner in which it

* Ræſel tried a frog; it ſwallowed the bee alive; its ſtomach was ſtung, and the animal vomited it up again.

was found. In the Memoirs of the Academy of Sciences there is an account of a toad found alive and healthy in the heart of a very thick elm, without the ſmalleſt entrance or egreſs*. In the year 1731 there was another found near Nants, in the heart of an old oak, without the ſmalleſt iſſue to its cell. The diſcoverer too was of opinion, from the ſize of the tree, that the animal could not have been confined leſs than eighty or a hundred years, without ſuſtenance and without air.

Of this animal there are ſeveral varieties; ſuch as the water and the land toad, which probably differ only in the ground-colour of their ſkin. In the firſt, it is more inclining to aſh-colour, with brown ſpots. In the other, the colour is brown, approaching to black. The water-toad is not ſo large as the other; but both equally breed in that element. The ſize of the toad with us is generally from two to four inches long; but, in the fenny countries of Europe, I have ſeen them much larger; and not leſs than a common crab. But this is nothing to what they are found in ſome of the tropical climates, where travellers often, for the firſt time, miſtake a toad for a tortoiſe. Their uſual ſize is from ſix to ſeven inches; but there are ſome ſtill larger, and as broad as a plate. Of theſe ſome are beautifully ſtreaked and coloured; ſome ſtudded over, as if with pearls; others briſtled with horns or ſpines. Some too have the head diſtinct from the body, while others have it ſo ſunk in, that the animal appears without a head. With us the opinion of its raining toads and frogs, has long been very juſtly exploded; but it ſtill is entertained in the tropical countries, and that not only by the ſavage natives, but likewiſe by the moſt refined ſettlers, who are apt enough to add the prejudices of other nations to their own.

It would be a tedious, as well as a uſeleſs taſk, to enter into all the minute diſcriminations of theſe animals, as found in different countries or places; but the PIPAL or the SURINAM TOAD, is too ſtrange a creature, not to require an exact deſcription.

This animal is in form more hideous than even the common toad. The body is flat and broad: the head is ſmall: the jaws, like thoſe of a mole, are extended, and evidently formed for rooting in the ground. The ſkin of the neck forms a ſort of wrinkled collar. The colour of the head is of a dark cheſnut, and the eyes are ſmall. The back, which is very broad, is of a lightiſh grey, and ſeems covered over with a number of ſmall eyes, which are round, and placed at nearly equal diſtances. Theſe eyes are very different from what they ſeem: they are the animal's eggs covered with their ſhells, and placed there for hatching. Theſe eggs are buried deep in the ſkin, and in the beginning of incubation but juſt appear; and are very viſible when the young animal is about to burſt from its confinement. They are of a reddiſh, ſhining yellow colour; and the ſpaces between them are full of ſmall warts not unlike pearls.

In this manner the pipal is ſeen travelling with her wondrous family on her back, in all the different ſtages of maturity. Some of the ſtrange progeny, not yet come to ſufficient perfection, appear quite torpid, and as yet without life in the egg. Others ſeem juſt beginning to riſe through the ſkin; here peeping forth from the ſhell; and there, having entirely forſaken their priſon. Some are ſporting at large upon the parent's

* Vide the Year 1719.

rent's back; and others deſcending to the ground, to try their own fortune below.

Of Lizards.

It is no eaſy matter to tell to what claſs in nature lizards are chiefly allied. They are unjuſtly raiſed to the rank of beaſts, as they bring forth eggs, diſpenſe with breathing, and are not covered with hair. They cannot be placed among fiſhes, as the majority of them live upon land. They are excluded from the ſerpent tribe, by their feet, upon which they run with ſome celerity; and from the inſects, by their ſeize; for though the Newt may be looked upon in this contemptible light, a crocodile would be a terrible inſect indeed.

As lizards thus differ from every other claſs of animals, they alſo differ widely from each other. With reſpect to ſize, no claſs of animals has its ranks ſo oppoſite.

The colour of theſe animals alſo is very various, as they are found of a hundred different hues, green, blue, red, cheſnut, yellow, ſpotted, ſtreaked, and marbled. Were colour alone capable of conſtituting beauty, the lizard would often pleaſe; but there is ſomething ſo forbidding in the animal's figure, that the brilliancy of its ſcales, or the variety of its ſpots, only tend to give an air of more exquiſite venom, of greater malignity. The figure of theſe animals is not leſs various. Sometimes they are ſwollen in the belly; ſometimes purſed up at the throat; ſometimes with a rough ſet of ſpines on the back, like the teeth of a ſaw; ſometimes with teeth, at other times with none. Sometimes they are venomous, at others harmleſs, and even philanthropic. They are ſometimes ſmooth and even. Sometimes they have a long, ſlender tail; and often a ſhort blunt one.

But their greateſt diſtinction ariſes from their manner of bringing forth their young. Some of them are viviparous: ſome again are oviparous; and ſome bring forth ſmall ſpawn, like fiſhes.

The Crocodile.

The Crocodile is an animal placed at a happy diſtance from the inhabitants of Europe, and formidable only in thoſe regions where men are ſcarce, and arts are but little known. In all the cultivated and populous parts of the world, the great animals are entirely baniſhed, or rarely ſeen. The appearance of ſuch raiſes at once a whole country up in arms to oppoſe their force; and their lives generally fall victims to their raſhneſs.

To look for this animal in all its natural terrors, grown to an enormous ſize, propagated in ſurpriſing numbers, and committing inceſſant devaſtations, we muſt go to the uninhabited regions of Africa and America, to thoſe immenſe rivers that roll through extenſive and deſolate kingdoms, where arts have never penetrated, where force only makes diſtinction, and where the moſt powerful animals exert their ſtrength with confidence and ſecurity.

Of this terrible animal there are two kinds; the Crocodile, properly ſo called, and the Cayman or Alligator. Travellers, however, have rather made the diſtinction than Nature; for in the general outline, and in the nature of theſe two animals they are entirely the ſame. The diſtinctions uſually made between the crocodile and alligator are theſe: the body of the crocodile is more ſlender than that of the alligator.

The

The ſnout of the former runs off tapering from the forehead, like that of a greyhound; while that of the latter is indented, like the noſe of a lap-dog. The crocodile has alſo a much wider ſwallow, and is of an aſh colour.

This animal grows to a great length, being ſometimes found 30 feet long, from the tip of the ſnout to the end of the tail; its moſt uſual length, however, is 18. One which was diſſected by the Jeſuits at Siam was 18 feet and an half French meaſure, in length; of which the tail was 5 feet and an half, and the head and neck above 2 feet and an half. It was 4 feet 9 inches in circumference, where thickeſt. The fore legs had the ſame parts and conformation as the arms of a man, both within and without. The hands, if they may be ſo called, had five fingers; the two laſt of which had no nails, and were of a conical figure. The hinder legs, including the thigh and paw, were 2 feet 2 inches long. The paws, from the joint to the extremity of the longeſt claws, were above 9 inches. They were divided alſo into four toes, of which three were armed with large claws, the longeſt of which was an inch and an half. Theſe toes were united by a membrane, like thoſe of a duck, but much thicker. The head was long, and had a little riſing at the top; but the reſt was flat, and eſpecially towards the extremity of the jaws. It was covered by a ſkin, which adhered firmly to the ſkull and to the jaws. The ſkull was rough and unequal in ſeveral places. The eye was very ſmall, in proportion to the reſt of the body. The jaws ſeemed to ſhut one within the other; and nothing can be more falſe than that the animal's under jaw is without motion. It moves, like the lower jaw in all other animals, while the upper is fixed to the ſkull, and abſolutely immoveable. The animal had twenty-ſeven cutting teeth in the upper jaw, and fifteen in the lower, with ſeveral void ſpaces between them. The diſtance of the two jaws, when opened as wide as they could be, was 15 inches and a half: this is a very wide yawn, and could eaſily enough take in the body of a man. From the ſhoulders to the extremity of the tail, the animal was covered with ſcales, of a ſquare form, diſpoſed like parallel girdles. The creature was covered not only with theſe, but all over with a coat of armour; which, however, was not proof againſt a muſquet-ball, contrary to what has been commonly aſſerted. It had no bladder; but the kidneys directed the urine ſo as to be diſcharged by the anus. There were ſixty two joints in the back bone, which, though very cloſely united, had ſufficient play to enable the animal to bend like a bow to the right and the left. What we hear therefore of eſcaping the creature by turning out of the right line, and of the animal not being able to wheel readily after its prey, ſeems to be fabulous.

Such is the figure and conformation of this formidable animal, that unpeoples countries, and renders the moſt navigable rivers deſart and dangerous. They are ſeen in ſome places, lying for whole hours, and even days, ſtretched in the ſun, and motionleſs. Thus one unaccuſtomed to them, might miſtake them for trunks of trees, covered with a rough and dry bark; but the miſtake would ſoon be fatal, if not prevented: for the torpid animal, at the near approach of any living thing, darts upon it with inſtant ſwiftneſs, and at once drags it down to the bottom. In the times of an inundation, they ſometimes enter the cottages of the natives, where the dreadful viſitant ſeizes the firſt animal it

it meets with. There have been ſeveral examples of their taking a man out of a canoe in ſpite of his companions.

The ſtrength of every part of the crocodile is very great; and its arms are irreſiſtible. Moſt naturaliſts have remarked, from the ſhortneſs of its legs, the amazing ſtrength of the tortoiſe. But what is the ſtrength of ſuch an animal, compared to that of the crocodile, whoſe legs are very ſhort, and whoſe ſize is ſo far ſuperior? Its principal inſtrument of deſtruction is the tail: with a ſingle blow of this it has often overturned a canoe, and ſeized upon the poor ſavage, its conductor.

Though not ſo powerful, yet it is very terrible even upon land. The crocodile ſeldom, except when preſſed by hunger, or with a view of depoſiting its eggs, leaves the water. Its uſual method is to float along upon the ſurface, and to ſeize whatever animals come within its reach; but when this method fails, it then goes cloſer to the bank. Diſappointed of its fiſhy prey, it there waits covered up among the ſedges, in patient expectation of the dog, the bull, the tiger, man himſelf, or, in ſhort, any other land animal. Nothing is to be ſeen of the inſidious deſtroyer as the animal approaches; nor is its retreat diſcovered till it be too late for ſafety. It ſeizes the victim with a ſpring, and that too much faſter than ſo unwieldy an animal could be thought capable of. Having then ſecured the creature with both teeth and claws, it drags it into the water, inſtantly ſinks with it to the bottom, and in this manner quickly drowns it.

Sometimes it happens that the creature the crocodile has thus ſurpriſed eſcapes from its graſp wounded, and makes off from the river-ſide. In ſuch a caſe, the tyrant purſues with all its force, and often ſeizes it a ſecond time; for, though ſeemingly heavy, the crocodile runs very faſt. In this manner it is ſometimes ſeen above half a mile from the bank, in purſuit of a wounded animal, and then dragging it back to the river-ſide, where it feaſts in ſecurity.

It often happens, in its depredations along the bank, that the crocodile ſeizes on a creature as formidable as itſelf, and meets with a moſt deſperate reſiſtance. We are told of frequent combats between the crocodile and the tiger. All creatures of the tiger kind are continually oppreſſed by a parching thirſt, that keeps them in the vicinity of great rivers, whither they deſcend to drink very frequently. It is upon theſe occaſions that they are ſeized by the crocodile; and they die not unrevenged. The inſtant they are ſeized upon, they turn with the greateſt agility, and force their claws into the crocodile's eyes, while he plunges with his fierce antagoniſt into the river. There they continue to ſtruggle, till the tiger is drowned.

In this manner the crocodile ſeizes and deſtroys all animals, and is equally dreaded by all. There is no animal, but man alone, that can combat it with ſucceſs. We are aſſured by Labat, that a Negroe, with no other weapon than a knife in his hand, and his left arm wrapped round with a cow's hide, ventures boldly to attack this animal in its own element. As ſoon as he approaches the crocodile, he preſents his left arm, which the animal ſwallows moſt greedily. But the arm ſticking in its throat, the Negroe has time to give it ſeveral ſtabs under the throat; and the water alſo getting in at the mouth, which is held involuntarily open, the crocodile is ſoon bloated up as big as a tun, and expires.

Whatever

Whatever be the truth of theſe accounts, it is certain, that crocodiles are taken by the Siameſe in great abundance. The manner of taking it, is, by throwing three or four ſtrong nets acroſs a river, at proper diſtances from each other; ſo that, if the animal breaks through the firſt, it may be caught by one of the reſt. When it is firſt taken, it employs its tail with great force; but, after many unſucceſsful ſtruggles, it is at laſt exhauſted. Then the natives approach their priſoner in boats, and pierce him with their weapons in the moſt tender parts, till he is weakened with the loſs of blood. When he is become motionleſs, they firſt tye up his mouth; and with the ſame cord, they faſten his head to his tail; which laſt they bend back like a bow. They are not, however, yet perfectly ſecure from his fury; but, for their greater ſafety they tie both his fore and hind feet to the top of his back.

The crocodile, when in this condition, ſerves, to divert the great men of the Eaſt. It is often managed like an horſe: a curb is put into its mouth, and the rider directs it as he thinks proper. Though awkwardly formed, it does not fail to proceed with ſome degree of ſwiftneſs, and is thought to move as faſt as ſome of the moſt unwieldy of our own animals, the hog, or the cow.

Along the rivers of Africa, this animal is ſometimes taken in the ſame manner as the ſhark. Several Europeans go together in a large boat, and throw out a piece of beef upon a hook and ſtrong fortified line, which the crocodile ſeizing and ſwallowing, is drawn along, floundering and ſtruggling until its ſtrength is quite exhauſted. Then it is pierced in the belly, which is its tendereſt part; and, after numberleſs wounds, it is drawn aſhore. In this part of the world alſo, as well as at Siam, the crocodile makes an object of ſavage pomp, near the palace of their monarchs. Philips informs us, that at Sabi, on the Slave Coaſt, there are two pools of water near the Royal Palace, where crocodiles are bred, as we breed carp in our ponds in Europe.

There is a very powerful ſmell of muſk about all theſe animals. Travellers are not agreed in what part of the body theſe muſk-bags are contained; but the moſt probable opinion is, that this ſubſtance is amaſſed in glands under the legs and arms. The crocodile's fleſh is, at beſt, very bad, and tough; but, unleſs the muſk-bags be ſeparated, it is intolerable. The Negroes themſelves cannot well digeſt the fleſh; but a crocodile's egg is to them the moſt delicate morſel in the world.

All crocodiles breed near freſh waters; and for this purpoſe, the female, when ſhe comes to lay, chuſes a place by the ſide of a river, or ſome freſh-water lake, to depoſit her brood in. She always pitches upon an extenſive ſandy ſhore. Their ſhe depoſits from eighty to an hundred eggs, of the ſize of a tennis-ball, and of the ſame figure, covered with a tough, white ſkin, like parchment. She takes above an hour to perform this taſk; and then, covering up the place ſo artfully that it can ſcarcely be perceived, ſhe returns next day. Upon her return, with the ſame precaution as before, ſhe lays about the ſame number of eggs; and the day following alſo a like number. Thus, having depoſited her whole quantity, and having covered them cloſe up in the ſand, they are ſoon vivified by the heat of the ſun; and, at the end of thirty days, the young ones begin to break open the ſhell. At this time, the female is inſtinctively taught that her young ones ſtand in need of relief; and ſhe goes up on land, to ſcratch away the ſand, and

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ſet them free. Her brood quickly avail themſelves of their liberty: a part run unguided to the water: another part aſcend the back of the female, and are carried thither in greater ſafety. But the moment they arrive at the water, all natural connection is at an end. The whole brood ſcatters into different parts at the bottom: by far the greateſt number are deſtroyed: and the reſt find ſafety in their agility or minuteneſs.

The Open-bellied Crocodile is furniſhed with a falſe belly, like the opoſſum, where the young creep out and in, as their dangers or neceſſities require. It is probable that this Open-bellied Crocodile is viviparous, and foſters her young that are prematurely excluded, in this ſecond womb, until they arrive at proper maturity.

The Salamander.

The ancients have deſcribed a lizard that is bred from heat, that lives in the flames, and feeds upon fire, as its proper nouriſhment. It will be needleſs to ſay that there is no ſuch animal exiſting; and that, above all others the modern Salamander has the leaſt affinity to ſuch an abode.

There have not been leſs than ſeven ſorts of this animal deſcribed by Seba. And to have ſome idea of the peculiarity of their figure, we may ſuppoſe the tail of a lizard applied to the body of a frog.

But it is not in figure that this animal chiefly differs from the reſt of the lizard tribe. In conformation it is unlike, as the ſalamander is produced alive from the body of its parent, and is completely formed the moment of its excluſion. It differs from them alſo in its being thought venomous, although no experiments that have been hitherto made, ſeem to confirm the truth of the report.

The ſalamander beſt known in Europe, is from eight to eleven inches long, uſually black, ſpotted with yellow; and when taken in the hand, feels cold to a great degree. There are ſeveral kinds; and our Black Water Newt is reckoned among the number. The idle report of its being inconſumable by fire, has made many of theſe poor animals to be burnt; but ſcarce any philoſopher could think it neceſſary to make the experiment. When thrown into the fire, the animal is ſeen to burſt with the heat of its ſituation, and to eject its fluids. We are gravely told in the Philoſophical Tranſactions, that this is a method the animal takes to extinguiſh the flames.

The whole of the lizard kind are ſo tenacious of life, that they will live ſeveral hours after the loſs of the head. They alſo ſuſtain the want of food in a ſurpriſing manner. One of them, brought from the Indies, lived nine months, without any other food than what it received from licking a piece of earth on which it was brought over*. Another was kept by Seba in an empty vial for ſix months, without any nouriſhment; and Redi takes notice of a large one, brought from Africa, that lived for eight months without any nouriſhment whatever. Indeed, as many of this kind, both ſalamanders and lizards, are torpid or nearly ſo during the winter, the loſs of their appetite for ſo long a time is the leſs ſurpriſing.

Directly deſcending from the crocodile, in this claſs, we find the Cordyle, the Tockay, and the Tejuguacu, all growing leſs in order. Theſe fill up the chaſm to be found between the crocodile and the African Iguana.

* Phil. Tranſ. ann. 1661. N. 21. art. 7.

The Iguana.

The iguana which deſerves our notice, is about three feet long, and the body is about as thick as one's thigh. The ſkin is covered with ſmall ſcales, like thoſe of a ſerpent; and the back is furniſhed with a row of prickles, that ſtand up, like the teeth of a ſaw. Both the jaws are full of very ſharp teeth; and the bite is dangerous, though not venomous. The male has a ſkin hanging under his throat, which reaches down to his breaſt; and, when out of humour, he puffs it up like a bladder. He is one third larger and ſtronger than the female, though the ſtrength of either avails them little towards their defence. The males are aſh-coloured, and the females are green.

The fleſh of theſe may be conſidered as the greateſt delicacy of Africa and America; and the ſportſmen of thoſe climates go out to hunt the iguana, as we do in purſuit of the pheaſant or the hare. In the beginning of the ſeaſon, when the great floods of the tropical climates are paſt, and vegetation ſtarts into univerſal verdure, the ſportſmen are ſeen, with a nooſe and a ſtick, wandering along the ſides of the rivers, to take the iguana. This animal, though it appears to be formed for combat, is the moſt harmleſs creature of the foreſt. It lives among the trees, or ſports in the water, without ever offering to offend. There, having fed upon the flowers of the mahot, and the leaves of the mapou, that grow along the banks of the ſtream, it repoſes upon the branches of the trees that hang over the water. Upon land, the animal is ſwift of foot; but, when once in poſſeſſion of a tree, it ſeems conſcious of the ſecurity of its ſituation, and never offers to ſtir. There the ſportſman eaſily finds it, and as eaſily faſtens his nooſe round its neck. If the head be placed in ſuch a manner that the nooſe cannot readily be faſtened, by hitting the animal a blow on the noſe with the ſtick, it lifts its head, and offers it in ſome meaſure to the nooſe. In this manner, and alſo by the tail, the iguana is dragged from the trees, and killed by repeated blows on the head.

The Cameleon.

The cameleon is a very different animal; and as the iguana ſatisfies the appetites of the epicure, the cameleon on the other hand, is rather the feaſt of the philoſopher. Like the crocodile, this little animal proceeds from an egg; and it alſo nearly reſembles that formidable creature in form.

The head of a large cameleon is almoſt two inches long; and thence to the beginning of the tail, four and a half. The tail is five inches long, and the feet two and a half. The thickneſs of the body is different at different times: ſometimes, from the back to the belly, it is two inches, and ſometimes but one; for it can blow itſelf up, and contract itſelf at pleaſure. This ſwelling and contraction is not only of the back and belly, but of the legs and tail.

The cameleon has a power of driving the air it breathes over every part of the body. Notwithſtanding this, it only gets between the ſkin and the muſcles; for the muſcles themſelves are never ſwollen. The ſkin is very cold to the touch; and though the animal ſeems ſo lean, there is no one can feel the beating of the heart. The ſurface of the ſkin is unequal, and has a grain not unlike ſhagreen, but very ſoft, becauſe each eminence is as ſmooth as if it were poliſhed. The colour

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of all theſe eminences, when the cameleon is at reſt in a ſhady place, is of a blueiſh grey; and the ſpace between is of a pale red and yellow.

But when the animal is removed into the ſun, then comes the wonderful part of its hiſtory. At firſt, it appears to ſuffer no change of colour, its greyiſh ſpots ſtill continuing the ſame. The whole ſurface, however, ſoon ſeems to imbibe the rays of light; and the ſimple colouring of the body changes into a variety of beautiful hues. Wherever light comes upon the body, it is of a tawny brown; but that part of the ſkin on which the ſun does not ſhine, changes into ſeveral brighter colours, pale yellow, or vivid crimſon; which form ſpots of the ſize of half one's finger. Some of theſe deſcend from the ſpine half way down the back; and others appear on the ſides, arms, and tail. Sometimes the animal becomes all over ſpotted with brown ſpots, of a greeniſh caſt. When it is wrapped up in a white linen cloth for two or three minutes, the natural colour becomes much lighter; but not perfectly white, as ſome authors have pretended. It muſt not however, hence be concluded, that the cameleon aſſumes the colour of the objects which it approaches. This is entirely an error, and probably has taken its riſe from the continual changes it appears to undergo.

When the cameleon changes place, and attempts to deſcend from an eminence, it moves with the utmoſt precaution, advancing one leg very deliberately before the other, ſtill ſecuring itſelf by holding whatever it can graſp by the tail. It ſeldom opens the mouth, except for freſh air; and when that is ſupplied, it diſcovers its ſatisfaction by its motions, and the frequent changes of its colour. The tongue is ſometimes darted out after its prey, which is flies; and this is as long as the whole body. The eyes are remarkably little, though they ſtand out of the head; but the moſt extraordinary part of their conformation is, that the animal often moves one eye, when the other is entirely at reſt. Even ſometimes one eye will ſeem to look directly forward, while the other looks backward; and one will look upwards, while the other looks downwards.

The Dragon.

To this claſs of lizards we may refer the dragon, a moſt terrible animal, if we were to credit the invention of fable and ſuperſtition. Happily, however, ſuch ravagers are no where found at preſent; and the whole race of dragons is dwindled down to the Flying Lizard, a little harmleſs creature, that only preys upon inſects, and even ſeems to embelliſh the foreſt with its beauty.

The Chalcidian Lizard.

The laſt animal of the lizard kind that I ſhall mention, is the Chalcidian Lizard, of Aldrovandus, very improperly called the Seps, by modern hiſtorians. This animal ſeems to make the ſhade that ſeparates the lizard from the ſerpent race. It has four legs, like the lizard; but ſo ſhort, as to be utterly unſerviceable in walking. It has a long ſlender body, like the ſerpent; and it is alſo ſaid to have the ſerpent's malignity. Theſe animals are found above three feet long, and thick in proportion, with a large head, and pointed ſnout. The whole body is covered with ſcales; and the belly is white, mixed with blue. It has four crooked teeth; as alſo a pointed tail, which, however, can inflict no wound. It is viviparous. Upon the whole, it appears to bear a ſtrong affinity to the viper; and, like that animal, its bite may be dangerous.

CHAP. XXXIV.

OF SERPENTS—OF THE VENOMOUS KIND—THE VIPER—THE RATTLE-SNAKE—THE WHIP-SNAKE—THE ASP—THE JACULUS—THE HÆMORRHOIS—THE SEPS—THE CORAL SNAKE—THE COBRA-CAPELLA—SERPENTS WITHOUT VENOM—THE BLACK SNAKE—THE BLIND-WORM—THE AMPHISBÆNA—THE ESCULAPIAN—THE BOYUNA—THE SURINAM SERPENT—THE PRINCE OF SERPENTS—THE GERENDA—JIBOYA—THE BOIGUACU—THE DEPONA.

Of Serpents.

IN none of the countries of Europe is the ſerpent tribe ſufficiently numerous to be truly terrible. The various malignity alſo that has been aſcribed to European ſerpents of old, is now utterly unknown. There are not above three or four kinds that are dangerous, and their poiſon operates in all in the ſame manner. A burning pain in the part, eaſily removeable by timely applications, is the worſt effect that we experience from the bite of the moſt venomous ſerpents of Europe.

Though, however, Europe be happily delivered from theſe reptiles, in the warm countries that lie within the tropic, as well as in the cold regions of the north, where the inhabitants are but few, the ſerpents abound. All along the ſwampy banks of the river Niger or Oroonoko, where the ſun is hot, the foreſts thick, and the men are but few, the ſerpents cling among the branches of the trees in infinite numbers, and carry on an unceaſing war, againſt all other animals in their vicinity. Travellers have aſſured us that they have often ſeen large ſnakes twining round the trunk of a tall tree, encompaſſing it like a wreath, and thus riſing and deſcending at pleaſure. In theſe countries, therefore, the ſerpent is too formidable to become an object of curioſity, as it excites much more violent ſenſations.

We are not, therefore, to reject as wholly fabulous, the accounts left us by the ancients of the terrible devaſtations committed by a ſingle ſerpent. It is probable, in early times, when the arts were little known, and mankind were but thinly ſcattered over the earth, that ſerpents, continuing undiſturbed poſſeſſors of the foreſt, grew to an amazing ſize; and every other tribe of animals fell before them. We have many hiſtories of antiquity, which preſent us with ſuch a picture; and which exhibit a whole nation ſinking under the ravages of a ſingle ſerpent. We are told, that while Regulus led his army along the banks of the Bagrada, in Africa, an enormous ſerpent diſputed his paſſage acroſs that river. We are aſſured by Pliny, who ſays that he himſelf ſaw the ſkin, that it was an hundred and twenty feet long, and that it had deſtroyed many of the army. At laſt, however, the battering engines were brought out againſt it; and theſe aſſailing it at a diſtance, overpowered it.

With reſpect to their conformation, all ſerpents have a very wide mouth, in proportion to the ſize of the head; and what is very extraordinary, they can gape and ſwallow the head of another animal which is three times as big as their own. To explain this, it muſt be obſerved, that the jaws of this animal do not open as ours, in the manner of a pair of hinges, where bones are applied to bones, and play upon

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one another. The ſerpent's jaws on the contrary, are held together at the roots by a ſtretching muſcular ſkin; by which means they open as widely as the animal chuſes to ſtretch them, and admit a prey much thicker than the ſnake's own body. The throat, like ſtretching leather, dilates to admit the morſel: the ſtomach too receives it in part; and the reſt remains in the gullet, till putrefaction and the juices of the ſerpent's body unite to diſſolve it.

With regard to the teeth, I ſhall ſpeak more of them when I come to treat of the viper's poiſon. The tongue in all theſe animals is long and forky. It is compoſed of two long fleſhy ſubſtances, which terminate in ſharp points, and are very pliable. Some of the viper kind have tongues a fifth part of the length of their bodies. They continually dart out, but they are entirely harmleſs, and only terrify thoſe who are ignorant of the real ſituation of their poiſon.

The ſkin is compoſed of a number of ſcales, united to each other by a tranſparent membrane, which grows harder as it grows older, until the animal changes it, which is generally done twice a year. This cover then burſts near the head, and the ſerpent creeps from it, by an undulatory motion, in a new ſkin, far more vivid than the former. As the edges of the foremoſt ſcales lie over the ends of their following ſcales, ſo thoſe edges, when the ſcales are erected, which the animal has a power of doing in a ſmall degree, catch in the ground, like the nails in the wheel of a chariot, and ſo promote and facilitate the animal's progreſſive motion. They erect theſe ſcales by a multitude of diſtinct muſcles, with which each is ſupplied.

This tribe of animals, like that of fiſhes, ſeems to have no bounds ſet to their growth. Their bones are in a great meaſure cartilaginous, and they are conſequently capable of great extenſion. The older, therefore a ſerpent becomes, the larger it grows; and as they ſeem to live to a great age, they arrive at an enormous ſize.

Leguat aſſures us, that he ſaw a ſerpent in Java, that was fifty feet long; and Carli mentions their growing to above forty feet. Mr Wentworth, aſſures me, that, in the Brebices in America, they grow to an enormous length. He one day ſent out a ſoldier, with an Indian, to kill wild fowl for the table; and they accordingly went ſome miles from the fort. In purſuing their game, the Indian, who generally marched before, beginning to tire, went to reſt himſelf upon the fallen trunk of a tree, as he ſuppoſed; but when he was juſt about to ſit down, the enormous monſter began to move, and the poor ſavage perceiving that he had approached a Lyboya the greateſt of all the ſerpent kind, dropped down in an agony. The ſoldier who perceived at ſome diſtance what had happened, levelled at the ſerpent's head, and, by a lucky aim, ſhot it dead. Notwithſtanding this, he continued his fire, until he was aſſured that the animal was killed; and then going up to reſcue his companion, who was fallen motionleſs by its ſide, he, to his aſtoniſhment, found him dead likewiſe, being killed by the fright. Upon his return to the fort, and telling what had happened, Mr Wentworth ordered the animal to be brought up, when it was meaſured, and found to be thirty-ſix feet long.

In the Eaſt Indies they grow alſo to an enormous ſize; particularly in the Iſland of Java, where, we are aſſured, that one of them will deſtroy and devour a buffalo. In a letter, printed in the German Ephe-

merides,

merides, we have an account of a combat between an enormous ſerpent and a buffalo, by a perſon, who aſſures us, that he ſaw it himſelf. The ſerpent had for ſome time been waiting near the brink of a pool, in expectation of its prey; when a buffalo was the firſt that offered. Having darted upon the affrighted animal, it inſtantly began to warp it round its voluminous twiſtings: and at every twiſt the bones of the buffalo were heard to crack almoſt as loud as the report of a cannon. It was in vain that the poor animal ſtruggled and bellowed. Its enormous enemy entwined it too cloſely to get free. At length, however, all its bones being maſhed to pieces, like thoſe of a malefactor on the wheel, and the whole body reduced to an uniform maſs, the ſerpent untwined its folds to ſwallow its prey at leiſure. To prepare for this, and to make the body ſlip down the throat more eaſily, it was ſeen to lick the whole body over, and thus cover it with its mucus. It then began to ſwallow it at that end that offered leaſt reſiſtance. Its length of body in the mean time was dilated to receive its prey, and thus took in at once a morſel that was thrice its own thickneſs. We are aſſured by travellers, that theſe animals are often found with the body of a ſtag in their gullet, while the horns, which they are unable to ſwallow ſtick out at their mouths.

But it is happy for mankind that the rapacity of theſe frightful creatures is often their puniſhment. Whenever, therefore, any of the ſerpent kind have gorged themſelves in this manner, whenever their body is ſeen particularly diſtended with food, they then become torpid, and may be approached and even deſtroyed without danger.

Other creatures have a choice in their proviſion; but the ſerpent indiſcriminately preys upon all; the buffalo, the tiger, and the gazelle. One would think that the porcupine's quills might be ſufficient to protect it; but whatever has life, ſerves to appeaſe the hunger of theſe devouring creatures. Porcupines, with all their quills, have frequently been found in their ſtomachs, when killed and opened; nay, they moſt frequently are ſeen to devour each other.

But though theſe animals are, above all others, the moſt voracious; and though the morſel which they ſwallow without chewing, is greater than what any other creature, either by land or water, the whale itſelf not excepted, can devour, yet no animal can be ſo abſtinent as they. A ſingle meal, with many of the ſnake kind, ſeems to be the adventure of a ſeaſon; and is an occurence for which they have been for weeks, ſometimes even for months, in expectation of. Their prey continues, for a long time, partly in the ſtomach, partly in the gullet; and a part is often ſeen hanging out of the mouth. In this manner it digeſts by degrees; and in proportion as the part below is diſſolved, the part above is taken in. It is not therefore till this tedious operation is entirely performed, that the ſerpent renews its appetite and its activity. But ſhould any accident prevent it from iſſuing once more from its cell, it ſtill can endure famine for weeks, months, nay, for years together. Vipers are often kept in boxes for ſix or eight months, without any food whatever; and there are little ſerpents ſometimes ſent over to Europe, from Grand Cairo, that live for ſeveral years in glaſſes, and never eat nor even ſtain the glaſs with their excrement. Thus the ſerpent tribe unite in themſelves two very oppoſite qualities; wonderful abſtinence, and yet incredible rapacity.

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Though all ſerpents are amphibious, ſome are much fonder of the water than others; and though deſtitute of fins or gills, they remain at the bottom, or ſwim along the ſurface with great eaſe. They can, however, endure to live in freſh water only; for ſalt is an effectual bane to the whole tribe.

Some ſerpents have a moſt horrible fœtor attending them, which is alone capable of intimidating the brave. This proceeds from two glands near the vent, like thoſe in the weaſel or the pole-cat; and, like thoſe animals, in proportion as they are excited by rage or by fear, the ſcent grows ſtronger. It would ſeem, however, that ſuch ſerpents as are moſt venomous, are leaſt offenſive in this particular; ſince the rattleſnake and the viper have no ſmell whatever. We are even told that at Calecut and Cranganor, in the Eaſt Indies, there are ſome very noxious ſerpents who are ſo far from being diſagreeable, that their excrements are ſought after and kept as the moſt pleaſing perfume. The Eſculapian ſerpent is alſo of this number.

Some ſerpents bring forth their young alive; as the viper: ſome bring forth eggs, which are hatched by the heat of their ſituation; as the common black ſnake, and the majority of the ſerpent tribe. When a reader, ignorant of anatomy, is told that ſome of thoſe animals produce their young alive, and that ſome produce eggs only, he is apt to ſuppoſe that there is a very great difference in the internal conformation, which makes ſuch a variety in the manner of bringing forth. But this is not the caſe. Theſe animals are internally alike, in whatever manner they produce their young; and the variety in their bringing forth, is rather a ſlight than a real diſcrimination. The only difference is, that the viper hatches her eggs, and brings them to maturity within her body. The ſnake is more premature in her productions, and ſends her eggs into the light, ſome time before the young ones are capable of leaving the ſhell. Thus, if either are opened, the eggs will be found in the womb, covered with their membranous ſhell, and adhering to each other, like large beads on a ſtring. In the eggs of both the young ones will be found, though at different ſtages of maturity. Thoſe of the viper will crawl and bite in the moment the ſhell that incloſes them is broken open; thoſe of the ſnake are not yet arrived at their perfect form.

Father Labat took a ſerpent of the viper kind, that was nine feet long, and ordered it to be opened in his preſence. He then ſaw the manner in which the eggs of theſe animals lie in the womb. In this creature there were ſix eggs, each of the ſize of a gooſe egg, but longer, more pointed, and covered with a membranous ſkin, by which alſo they were united to one another. Each of theſe eggs contained from thirteen to fifteen young ones, about ſix inches long, and as thick as a gooſe quill. Theſe little miſchievous animals were no ſooner let looſe from the ſhell, than they crept about, and put themſelves into a threatening poſture, coiling themſelves up and biting the ſtick with which he was deſtroying them. In this manner he killed ſeventy-four young ones. Thoſe however, that were contained in one of the eggs eſcaped at the place where the female was killed, by the burſting of the egg and their getting among the buſhes.

The

The laſt diſtinction that I ſhall mention, but the moſt material, among ſerpents is, that ſome are venomous and ſome inoffenſive, but not above a tenth of their number are actually venomous.

From theſe noxious qualities in the ſerpent kind, it is no wonder that not only man, but beaſts and birds, carry on an unremitting war againſt them. The ichneumon of the Indians, and the peccary of America, deſtroy them in great numbers. Theſe animals have the art of ſeizing them near the head; and it is ſaid that they can ſkin them with great dexterity. The vulture and the eagle alſo prey upon them in great abundance; and often ſouſing down from the clouds, drop upon a long ſerpent, which they ſnatch ſtruggling and writhing in the air. Dogs alſo are bred up to oppoſe them. Father Feuillee tells us, that being in the woods of Martinico, he was attacked by a large ſerpent, which he could not eaſily avoid, when his dog immediately came to his relief, and ſeized the aſſailant with great courage. The ſerpent entwined the dog, and preſſed him ſo violently, that the blood came out of his mouth, and yet the dog never ceaſed till he had torn it to pieces. The dog was not ſenſible of his wounds during the fight; but ſoon after his head ſwelled prodigiouſly, and he lay on the ground as dead. But his maſter having found, hard by, a banana tree, he applied its juice, mixed with treacle, to the wounds; which recovered the dog, and quickly healed his ſores.

In India there is nothing ſo common as dancing ſerpents, which are carried about in a broad flat veſſel ſomewhat like a ſieve. Theſe erect and put themſelves in motion at the word of command. When their keeper ſings a ſlow tune, they ſeem by their heads to keep time; when he ſings a quicker meaſure, they appear to move more lively. All animals have a certain degree of docility; and we find that ſerpents themſelves can be brought to move and approach at the voice of their maſter. From this trick ſucceſsfully practiſed before the ignorant, it is moſt probable has ariſen all the boaſted pretenſions which ſome have made to charming ſerpents; an art to which the native Americans pretend at this very day.

Of Venomous Serpents.

In all countries, the poiſon of the ſerpent is ſufficiently formidable to deſerve notice, and to excite our attention to its nature and effects. It will therefore in the firſt place be proper to deſcribe its ſeat in the animal, alſo the inſtrument by which the wound is made and the poiſon injected. In all this venomous claſs of reptiles, whether the viper the rattle-ſnake, or the cobra di capello, there are two large teeth or fangs that iſſue from the upper jaw, and that hang out beyond the lower. The reſt of the ſnake tribe are deſtitute of theſe; and it is moſt probable that wherever theſe fangs are wanting, the animal is harmleſs. On the contrary, wherever they are found it is to be avoided as the moſt peſtilent enemy. Our firſt great attention, therefore, upon ſeeing a ſerpent ſhould be directed to the teeth. The black ſnake, the liboya, the blind worm, and a hundred others that might be mentioned, have their teeth of an equal ſize, fixed into the jaws, and with no other apparatus for inflicting a dangerous wound than a dog or a lizard. But it is otherwiſe with the venomous tribe we are now deſcribing. Theſe are well furniſhed, not only with an elaboratory, where the poiſon is formed, but a canal by which it is conducted to the jaw,

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a bag under the tooth for keeping it ready for every occaſion, and alſo an aperture in the tooth itſelf for injecting it into the wound. The venom contained in this bag is a yellowiſh, thick, taſteleſs liquor, which injected into the blood is death, yet which may be ſwallowed without any danger.

The fangs that give the wound are large in proportion to the ſize of the animal that bears them; crooked, yet ſharp enough to inflict a ready wound. They grow one on each ſide, and ſometimes two from two moveable bones in the upper jaw, which by ſliding backward or forward, have a power of erecting or depreſſing the teeth at pleaſure. In theſe bones are alſo fixed ſeveral teeth which are by no means venomous, and which only ſerve to take and hold the animal's prey. If a viper inflict the wound, and the remedy be neglected, the ſymptoms are not without danger. It firſt occaſions an acute pain in the place affected, attended with a ſwelling, firſt red, and afterwards livid. To this ſucceed great ſickneſs at the ſtomach, bilious and convulſive vomitings, cold ſweats, pains about the navel, and death itſelf. Theſe ſymptoms are much more violent, and ſucceed each other more rapidly after the bite of a rattle ſnake; but when the perſon is bit by the cobra di capello, he dies in an hour, his whole frame being diſſolved into a putrid maſs of corruption.

In the eaſtern and weſtern Indies, the number of noxious ſerpents is various. In Great Britain, the viper is the only animal from whoſe bite we have any thing to fear. In the tropical climates, the rattle-ſnake, the whip ſnake, and the cobra di capello, are the moſt formidable, though by no means the moſt common.

Of Vipers.

Vipers are found in many parts of Europe; but the dry, ſtony, and in particular the chalky countries abound with them. This animal ſeldom grows above two feet long; though ſometimes they are found above three. The ground colour of their bodies is a dirty yellow; that of the female is deeper. The back is marked the whole length with a ſeries of rhomboid black ſpots, touching each other at the points; the ſides with triangular ones, and the belly is entirely black. It is chiefly diſtinguiſhed from the common black ſnake by the colour, which in the latter is more beautifully mottled, as well as by the head, which is thicker than the body; but particularly by the tail, which in the viper, though it ends in a point, does not run tapering to ſo great a length as in the other. When, therefore, other diſtinctions fail, the difference of the tail can be diſcerned at a ſingle glance.

The viper differs from moſt other ſerpents in being much ſlower, as alſo in excluding its young completely formed, and bringing them forth alive. The kindneſs of Providence ſeems exerted not only in diminiſhing the ſpeed, but alſo the fertility, of this dangerous creature. They copulate in May, and are ſuppoſed to be about three months before they bring forth, and have ſeldom above eleven eggs at a time. Theſe are thoſe of the ſize of a blackbird, and chained together in the womb like a ſtring of beads. Each egg contains from one to four young ones; ſo that the whole of a brood may amount to about twenty or thirty. They continue in the womb till they come to ſuch perfection as to be able to burſt from the ſhell; and they are ſaid by their own efforts to

creep from their confinement in the open air, where they continue for ſeveral days without taking any food whatſoever.

The viper is capable of being very abſtinent. Some have been kept in a box ſix months without food; yet during the whole time they did not abate of their vivacity. They feed only a ſmall part of the year, but never during their confinement; for if mice, their favourite food, ſhould at that time be thrown into their box, though they will kill, yet they will never eat them. When at liberty, they remain torpid throughout the winter; yet, when confined, they have never been obſerved to take their annual repoſe.

They are uſually taken with wooden tongs, by the end of the tail, which may be done without danger; for, while in that poſition, they are unable to wind themſelves up to hurt their enemy. Notwithſtanding this precaution, the viper-catchers are frequently bitten by them; but, by the application of olive-oil, the bite is effectually cured.

The Rattle-Snake.

The rattle-ſnake is bred in America, and in no part of the old world. Some are as thick as a man's leg, and ſix feet in length; but the moſt uſual ſize is from four to five feet long. In moſt particulars it reſembles the viper. It differs, however, in having a large ſcale, which hangs like a penthouſe over each eye. They are of an orange tawny, and blackiſh colour on the back: and of an aſh-colour on the belly inclining to lead. The male may be diſtinguiſhed from the female, by a black velvet ſpot on the head, and by the head being ſmaller and longer. But that which in addition to their ſuperior malignity, diſtinguiſhes them from all other animals, is their rattle, an inſtrument lodged in their tail, by which they make ſuch a loud, rattling noiſe, when they move, that their approach may be perceived, and the danger avoided. This rattle, which is placed in the tail, when taken out of the body, is not unlike the curb chain of a bridle. It is compoſed of ſeveral thin, hard, hollow bones, linked to each other, and rattling upon the ſlighteſt motion. It is ſuppoſed by ſome, that the ſnake acquires an additional bone every year; and that, from this, its age may be preciſely aſcertained. However this may be, certain it is, that the young ſnakes, of a year or two old, have no rattles at all; while many old ones have been killed, that had from eleven to thirteen joints each. They ſhake and make a noiſe with theſe rattles with prodigious quickneſs when they are diſturbed; yet, the peccary and the vulture are no way terrified at the ſound, but haſten, at the ſignal, to ſeize the ſnake, as their moſt favourite prey.

It is very different with almoſt every other animal. The certain death which enſues from this terrible creature's bite, makes a ſolitude wherever it is heard. It moves along with the moſt majeſtic rapidity; neither ſeeking to offend the larger animals, nor fearing their inſults. If unprovoked, it never meddles with any thing but its natural prey; but when accidentally trode upon, or purſued to be deſtroyed, it then makes a deſperate defence. It erects itſelf upon its tail, throws back the head, and inflicts its wound in a moment; then parts, and inflicts a ſecond wound. After this, it is ſaid, by ſome, to remain torpid and inactive, without even attempting to eſcape.

The very inſtant the wound is inflicted, though ſmall in itſelf, it appears more painful than the ſting of a bee. This pain, which is ſo ſuddenly

denly felt, far from abating, grows every moment more excruciating and dangerous. The limb ſwells: the venom reaches the head, which is ſoon of a monſtrous ſize: the eyes are red and fiery: the heart beats quick, with frequent interruptions. In ſhort, the pain becomes intolerable, and ſome expire under it in five or ſix hours; but others, who are of ſtronger conſtitutions, ſurvive the agony for a few hours longer, only to ſink under a general mortification which enſues, and corrupts the whole body.

The Whip-ſnake.

The ſerpent called the whip-ſnake, is ſtill more venomous than the former. This animal, which is a native of the Eaſt, is about five feet long, yet not much thicker than the thong of a coachman's whip. It is exceedingly venomous; and its bite is ſaid to kill in about ſix hours. One of the Jeſuit miſſionaries, happening to enter into an Indian pagoda, ſaw what he took to be a whip cord lying on the floor, and ſtooped to take it up; but upon handling it, what was his ſurpriſe to find that it was animated, and no other than the whip-ſnake, of which he had heard ſuch formidable accounts. Fortune, however, ſeemed favourable to him; for he graſped it by the head, ſo that it had no power to bite him, and only twiſted its folds up his arm. In this manner he held it, till it was killed by thoſe who came to his aſſiſtance.

To this formidable claſs might be added the Asp, whoſe bite, however, is not attended with thoſe drowſy ſymptoms which the ancients aſcribed to it. The Jaculus of Jamaica alſo, is one of the ſwifteſt of the ſerpent kind. The Hæmorrhois, ſo called from the hæmorrhages which its bite is ſaid to produce. The Seps, whoſe wound is very venomous, and occaſions the part affected to corrupt in a very ſhort time: the Coral Serpent, which is red, and whoſe bite is ſaid to be fatal. But the Corbra di Capella, or Hooded Serpent, inflicts the moſt deadly and incurable wounds. Of this formidable creature there are five or ſix different kinds; but they are all equally dangerous, and their bite is followed by a ſpeedy death. It is from three to eight feet long, with two large fangs hanging out of the upper jaw. It has a broad neck, and a mark of dark brown on the forehead; which, when viewed front-wiſe, looks like a pair of ſpectacles; but behind, like the head of a cat. The eyes are fierce, and full of fire; the head is ſmall, and the noſe flat, though covered with very large ſcales, of a yellowiſh aſh-colour. Its ſkin is white; and the large tumour on the neck is flat, and covered with oblong, ſmooth ſcales.

Of Serpents without Venom.

This claſs of ſerpents all want that artificial mechaniſm by which the poiſonous tribe inflict ſuch deadly wounds. They have no gland in the head for preparing venom; no conduits for conveying it to the teeth; no receptacles there; no hollow in the inſtrument that inflicts the wound. Their bite, when the teeth happen to be large enough to penetrate the ſkin, for in general they are too ſmall for this purpoſe, is attended with no other ſymptoms than thoſe of an ordinary puncture. Beſides many of this tribe, as if ſenſible of their own impotence, cannot be provoked to bite, though ever ſo rudely aſſaulted. They hiſs, dart out their forky tongues, erect themſelves on the tail, and call up all their terrors to intimidate their aggreſſors, but ſeem to conſider their teeth

as unneceſſary inſtruments of defence, and never attempt to uſe them. Even among the largeſt of this kind, the teeth are never employed, in the moſt deſperate engagements. When a hare or a bird is caught, the teeth may ſerve to prevent ſuch ſmall game from eſcaping. When on the contrary, a buffalo or a tiger is to be encountered, it is by the ſtrong folds of the body, by the fierce verberations of the tail, that the enemy is deſtroyed. By this twining round, and drawing the knot with convulſive energy, this enormous reptile breaks every bone in the quadruped's body, and then, at one morſel, devours its prey.

Hence we may diſtinguiſh the unvenomous tribe into two kinds: firſt, into thoſe which are ſeldom found of any conſiderable ſize, and that never offend animals larger or more powerful than themſelves, but which find their chief protection in flight, or in the doubtfulneſs of their form; ſecondly, into ſuch as grow to an enormous ſize, fear no enemy, but indiſcriminately attack all other animals, and devour them. Of the firſt kind is the Common Black Snake, the Blind Worm, the Eſculapian Serpent, the Amphiſbæna, and ſeveral others. Of the ſecond, the Liboya, the Boiguacu, the Depona, and the Boiquatrara.

The Black Snake.

The Black Snake is the largeſt of Engliſh ſerpents, and is ſometimes above four feet long. The neck is ſlender: the middle of the body, is thick: the back and ſides, are covered with ſmall ſcales; the belly, with oblong, narrow, tranſverſe plates; the colour of the back and ſides is of a duſky brown: the middle of the back is marked with two rows of ſmall black ſpots, running from the head to the tail: the plates on the belly are duſky: the ſcales on the ſides are of a bluiſh white: the teeth are ſmall and ſerrated, lying on each ſide of the jaw, in two rows. The whole ſpecies is perfectly inoffenſive, taking ſhelter in dung-hills, and among buſhes in moiſt places; whence they ſeldom remove, unleſs in the midſt of the day, in ſummer, when they are invited by the heat, to baſk themſelves in the ſun.

The black ſnake preys upon frogs, inſects, worms, mice, and young birds; and, conſidering the ſmallneſs of the neck, it is amazing how large an animal it will ſwallow. The black ſnake of Virginia, which is larger than ours, and generally grows to ſix feet long, takes a prey proportionable to its ſize; partridges, chickens, and young ducks. It is generally found in the neighbourhood of the hen-rooſt, and will devour the eggs, even while the hen is ſitting upon them. Theſe it ſwallows whole; and often, after it has done the miſchief, will coil itſelf round in the neſt.

The whole of this tribe are oviparous, laying eighty or an hundred eggs at a time, in dung-hills or hot-beds; the heat of which, aided by that of the ſun, brings them to maturity. During winter, they lie torpid, in banks of hedges, and under old trees.

The Blind Worm.

The Blind Worm is another harmleſs reptile, with a formidable appearance. The uſual length of this ſpecies is eleven inches. The eyes are red, the head ſmall, the neck ſtill more ſlender. From the neck the body grows ſuddenly, and continues of an equal bulk to the tail, which ends quite blunt. The colour of the back is cinereous, marked with very ſmall lines, compoſed of minute black ſpekes. The motion of this ſerpent is ſlow; from which, and from the ſmallneſs of the eyes,

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are derived its names; ſome calling it the ſlow, and ſome the Blind Worm. Like all the reſt of the kind, in our climates, they lie torpid during winter, and are ſometimes found, in vaſt numbers, twiſted together. This animal, like the former, is perfectly innocent; like the viper, however, it brings forth its young alive.

The Amphiſbæna.

The Amphiſbæna, or the Double-headed Serpent, is remarkable for moving along with either the head or the tail foremoſt: whence it has been thought to have two heads. Some have affirmed that its bite is dangerous; but this muſt be a miſtake, as it wants the fangs, and conſequently the elaboratory that prepares the poiſon.

The Eſculapian Serpent.

The Eſculapian Serpent of Italy is among this number. In that country, it is ſuffered to crawl about the chambers, and often gets into the beds where people lie. It is a yellow ſerpent, of about an ell long; and, though innocent, yet will bite when exaſperated. They are ſaid to be great deſtroyers of mice; and this may be the reaſon why they are taken under human protection. The Boyuna of Ceylon is equally a favourite among the natives; and they conſider the meeting it as a ſign of good luck. The Surinam Serpent, which ſome improperly call the Ammodytes, is equally harmleſs and deſireable among the ſavages of that part of the world. They conſider themſelves as extremely happy, if this animal come into their huts. The colours of this ſerpent are ſo many and beautiful, that they exceed deſcription; and theſe, perhaps, are the chief inducements to the ſavages, to conſider its viſits as ſo very fortunate. A ſtill greater favourite is the Prince of Serpents, a native of Japan, matchleſs for beauty. The ſcales which cover the back are reddiſh, finely ſhaded, and marbled with large ſpots of irregular figures mixed with black. The fore part of the head is covered with large, beautiful ſcales: the jaws are bordered with yellow: the forehead is marked with a black marbled ſtreak, and the eyes are handſome and lively. But the Gerenda of the Eaſt Indies is the moſt eſteemed. To this animal, which is finely ſpotted with various colours, the natives of Calicut pay divine honours; and while their diety lies coiled up, which is its uſual poſture, the people proſtrate themſelves before it, with ſtupid adoration. The African Gerenda is larger, and worſhipped in the ſame manner, by the inhabitants of the coaſts of Mozambique.

But, in the larger tribe of ſerpents, there is nothing but danger to be apprehended. This formidable claſs, though without venom, have ſomething frightful in their colour, as well as in their ſize and form. They want that vivid hue with which the ſavages are ſo much pleaſed in the leſſer kinds. They are all of a duſky colour, with large teeth, which are more formidable than dangerous.

The firſt of this claſs, is the Great Jiboya of Java and Brazil, which Leguat affirms, to be fifty feet long. The largeſt animal of this kind, which has been brought into Europe, is but thirty-ſix feet long; and it is probable, that much greater have been ſeen and deſtroyed, before they were thought worth ſending ſo far, to ſatisfy European curioſity. The moſt uſual length, however, of the jiboya, is about twenty feet, and it is thick in proportion. The teeth are ſmall in proportion to the body; nor are they uſed, but when it ſeizes the ſmalleſt prey.

The Boiguacu.

The Boiguacu is ſuppoſed to be the next in ſize, and has often been ſeen to ſwallow a goat. It is thickeſt in the middle of the body, and grows ſhorter and ſmaller towards the head and the tail. It has a double row of ſharp teeth in each jaw, ſhining like mother-of-pearl. The head is broad, and over the eyes it is raiſed into two prominences. Near the extremity of the tail there are two claws, reſembling thoſe of birds.

Theſe ſerpents lie hid in thickets, whence they ſally out unawares, and raiſing themſelves upright on their tails, will attack both men and beaſts. They make a loud hiſſing noiſe when exaſperated; and ſometimes winding up trees, they will dart down upon travellers, and twiſt themſelves ſo cloſely round their bodies, as to diſpatch them in a very few minutes.

To this claſs of large ſerpents, we may refer the DEPONA, a native of Mexico, with a very large head, and great jaws. The mouth is armed with cutting, crooked teeth, among which there are two longer than the reſt, placed in the fore part of the upper jaw, but very different from the fangs of the viper. All round the mouth there is a broad ſcaly border; and the eyes are ſo large, that they give it a very terrible aſpect. The forehead is covered with very large ſcales, on which are placed others, that are ſmaller, curiouſly ranged. Thoſe on the back are greyiſh. Each ſide of the belly is marbled with large ſquare ſpots, of a cheſnut colour; in the middle of which is a ſpot, which is round and yellow. They avoid the ſight of man; and conſequently, never do much harm.

CHAP. XXXV.

OF INSECTS IN GENERAL—OBSERVATIONS ON THE BEE, THE ANT, AND THE SILK-WORM—THE INFERIORITY AND IMPERFECTION OF THIS CLASS OF ANIMALS—THEIR INSTINCTS—USES—NATURE—CLASSIFICATION—INSECTS WITHOUT WINGS—GRASSHOPPERS,—&C.—MOTHS AND BUTTERFLIES—OTHER FLIES—ZOOPHYTES.

MANY concurring circumſtances hinder us from exhibiting a complete hiſtory of inſects.—Their numbers infinitely exceed that of all the other claſſes of animals. Remote from our habits, and in general, by their minuteneſs placed beyond the ſcope of our obſervation, too much of what naturaliſts have produced upon theſe ſubjects, is liable, at leaſt, to ſuſpicion. We can contemplate, for inſtance, with admiration, the wonderful fabric of the bee, or the induſtry of the ant; but when we would penetrate into the *realm* of the one, or the *republic* of the other, we neceſſarily ſubject ourſelves to much deception, and the imagination is called in to ſupply the place of obſervation. Of the ſilk-worm itſelf we can only relate, that it proceeds from the egg a naked caterpillar; it ſpins its curious thread, becomes a chryſalis, and ends its exiſtence as a winged animal. All, therefore, that appears neceſſary

neceſſary in this department, is, a general account of the nature of the inſect world in general, and to draw the line of diſtinction between them and the other claſſes of animated beings.

There is, indeed, another reaſon why the attention ſhould not be too much diverted into this minute channel; and that is, its want of importance. For, however the admirers of butterflies and caterpillars may chuſe to magnify their favourite purſuit, it cannot be doubted, that the inſect tribe are of a nature extremely inferior to all the other inhabitants of the earth.

Of all living beings, man offers the moſt wonderful variety in his internal conformation. Quadrupeds come next; and other animals follow in proportion to their powers or their excellencies. Inſects ſeem above all others the moſt imperfectly formed. From their minuteneſs, they even baffle the diſſecting knife itſelf; but what argues an evident imperfection, is, that many of them can live a long time, though deprived of thoſe organs which are neceſſary to life in the higher ranks of nature. Many of them are furniſhed with lungs and a heart like nobler animals; yet the caterpillar continues to live, though its heart and lungs, which is often the caſe, are entirely eaten away.

But it is not from their conformation alone, that inſects are inferior to other animals, but from their inſtincts alſo. It is true, that the ant and the bee preſent us with very ſtriking inſtances of aſſiduity; but, how far are their's beneath the marks of ſagacity exhibited in the hound or the ſtag! A bee taken from the ſwarm is totally helpleſs and inactive, incapable of giving the ſmalleſt variation to its inſtincts; it has but one method of operating; and, if put from that, it can turn to no other. In the purſuits of the hound, there is ſomething like a choice; in the labours of the bee, the whole appears like neceſſity or compulſion.

If inſects be conſidered as bearing a relation to man, and as aſſiſting him in the pleaſures or neceſſities of life, they will, even in this reſpect, ſink in the compariſon with the larger tribes of nature. It is true, that the bee, the ſilk-worm, the cochineal fly, and the cantharides, render him ſignal ſervices; but how many others of this claſs, are either noxious, or totally uſeleſs to him. Even in a country like ours, where all the noxious animals have been reduced by repeated aſſiduity, the inſect tribe ſtill maintain their ground, and are but too often unwelcome intruders upon the fruits of human induſtry. But, in more uncultivated regions, their annoyance and devaſtations are terrible. What an uncomfortable life muſt the natives lead in Lapland, and ſome parts of America, where, if a candle be lighted, the inſects ſwarm in ſuch abundance, as inſtantly to extinguiſh it with their numbers; where the inhabitants are obliged to ſmear their bodies and faces with tar, or ſome other compoſition, to protect them from the puncture of other minute enemies; where, though millions are deſtroyed, famiſhed millions are ſtill ſeen to ſucceed, and to make the torture endleſs!

Their amazing number is alſo an argument of their imperfection. It is a rule that obtains through all nature, that the nobler animals are ſlowly produced, and that nature acts with a kind of dignified œconomy. The meaner births are laviſhed in profuſion; and thouſands are brought forth merely to ſupply the neceſſities of the more favourite objects of creation. Of all productions in nature, inſects are the moſt numerous. Vegetables that cover the ſurface of the earth, bear no proportion

portion to their multitudes; and though, at firſt ſight, herbs of the field ſeem to be the parts of organized nature produced in the greateſt abundance, yet, upon minuter inſpection, we ſhall find every plant ſupporting a number of ſcarce perceptible creatures, that fill up the various ſtages of youth, vigour and age, in the compaſs of a few days' exiſtence.

All other animals are capable of ſome degree of education. Their inſtincts may be ſuppreſſed or altered. The dog may be taught to fetch and carry; the bird to whiſtle a tune, and the ſerpent to dance; but the inſect has but one invariable method of operating. No arts can turn it from its inſtincts; and indeed its life is too ſhort for inſtruction, as a ſingle ſeaſon often terminates its exiſtence.

For theſe reaſons, the inſect tribe are deſervedly placed in the loweſt rank of animated nature; and, in general, they ſeem to be more allied to the vegetables on which they feed, than to the nobler claſſes above them. Many of them are attached to one vegetable, often to a ſingle leaf. There they increaſe with the flouriſhing plant, and die as it decays. A few days fill up the meaſure of their contemptible lives; while the ends for which they were produced, or the pleaſures they enjoyed, to us at leaſt, are utterly unknown.

Yet, while we are thus fixing the rank of a certain claſs of animals, it ſeems neceſſary to define the nature of thoſe which are thus degraded. Definitions, in general, produce little knowledge; but here, where the ſhades of nature are ſo intimately blended, ſome diſcrimination is neceſſary to prevent confuſion. The ſmallneſs of the animal, for inſtance, does not conſtitute an inſect. Otherwiſe many of the lizard kind, which are not above two inches long, would come under this denomination; and if the ſmaller lizards, why not the crocodile, which would be a terrible inſect indeed? In the ſame manner, ſmallneſs, with a ſlow, creeping motion, does not conſtitute an inſect; for, though ſnails might be called inſects with ſome propriety, the whole tribe of ſea ſhell-fiſh would then have equal pretenſions, and a very troubleſome innovation would be brought into our language, which is already formed. Excluding ſuch animals, therefore, from the inſect tribe, we may define inſects to be *little animals without red blood, bones or cartilages, furniſhed with a trunk, or elſe a mouth, opening lengthwiſe, with eyes which they are incapable of covering, and with lungs which have their openings on the ſides.* This definition comprehends the whole claſs of inſects, whether with or without wings, whether in their caterpillar or butterfly ſtate, whether produced in the ordinary method of generation between male and female, or from an animal that is itſelf both male and female, or from the ſame animal cut into ſeveral parts, and each part producing a perfect animal.

Hence it appears, that in this claſs of animals there are numerous diſtinctions. Almoſt every ſpecies has its own diſtinct hiſtory, and exhibits manners, appetites, and modes of propagation peculiar to itſelf.

In the larger ranks of exiſtence, two animals that nearly reſemble each other in form, will be found to have a ſimilar hiſtory; but here, inſects almoſt entirely alike, will be often found perfectly different, as well in their manner of bringing forth and ſubſiſting, as in the changes which they undergo during their ſhort lives.

Unto

Upon taking a ſlight view of the whole inſect tribe, juſt when they are ſuppoſed to rouze from their ſtate of annual torpidity, when they begin to feel the genial influence of ſpring, and again exhibit new life in every part of nature, their numbers and their varieties ſeem to exceed all calculation; and they are indeed too great for deſcription. When we look cloſer, however, we ſhall find ſome ſtriking ſimilitudes, either in their propagation, their manners, or their form, that give us a hint for grouping ſeveral of them into one deſcription, and thus enabling us to avoid the labour of a ſeparate hiſtory for every ſpecies.

In a curſory inſpection of the inſect tribe, the firſt animals that offer themſelves are thoſe which want wings, that appear crawling about on ever plant, and on every ſpot of earth which we regard with any degree of attention. Of theſe, ſome never obtain wings at any period of their exiſtence, but are deſtined to creep on the vegetable, or the ſpot of earth where they are ſtationed, for their whole lives. On the contrary, others are only candidates for a more happy ſituation, and only wait their growing wings, when they may be ſaid to arrive at their ſtate of full perfection.

Thoſe that never have wings, but creep about till they die, may be conſidered as conſtituting the *firſt* claſs of inſects. All theſe, the flea and the wood-louſe only excepted, are produced from an egg; and, when once they break the ſhell, they never undergo any further change of form but continue to grow larger till they die. Thus the louſe or the ſpider are produced from an egg, never ſuffering any alteration when once they are excluded; but, like the chicken or the duck, remaining invariably the ſame, from their birth to their diſſolution. The ſtrength of ſome of this claſs is almoſt incredible. A flea will draw a chain a hundred times heavier than itſelf, and will eat ten times its own ſize of proviſion in a day.

The ſecond order of inſects conſiſts of ſuch as have wings; but which, when produced from the egg, have thoſe wings caſed up in ſuch a manner as not to appear. This circumſtance, however, does not prevent the animal's running, leaping, and moving with its natural celerity; but, when the caſe burſts, and the wings have a power of expanding, all its motions become more extenſive, and it arrives at full perfection. Thus the graſshopper, the dragon fly, and the earwig, have their wings at firſt bound down; but when the ſkin, that, like a pair of ſtays, kept them confined, burſts, they are then expanded, and the animal purſues the purpoſes for which it was deſtined. There is one animal of this claſs, called the Ephemera, which lives in this ſtate but a ſingle day.

The third order of inſects is of the moth and butterfly kind. Theſe all have four wings, each covered with a mealy ſubſtance of various colours, which, when handled, comes off upon the fingers; and, if examined by the microſcope, will appear like feathers, with which the wing is nicely embroidered all over. Theſe inſects alſo are produced in a manner peculiar to themſelves. They are firſt hatched from an egg, whence proceeds a caterpillar, that eats, and often caſts its ſkin. This caterpiller having diveſted itſelf for the laſt time, aſſumes a new covering, which is called a chryſalis, or the cone in the ſilk-worm, in which it conceals itſelf till it comes forth a perfect moth and butterfly.

The fourth order is of thoſe winged inſects which come from a worm, inſtead of a caterpillar, and yet undergo changes ſimilar to thoſe which moths and butterflies do. They are firſt excluded from the egg as a worm, and then become a chryſalis. In ſome, their wings and legs are ſeen; in others, the animal is quite detached from thecone in which it is concealed; but all, at length, break their priſon, and come out perfect winged animals; ſome furniſhed with two wings, and ſome with four. The wings of all theſe differ from thoſe of the butterfly and moth kind, by not having the mealy matter which is ever found on the wings of the former. In this claſs we may place the numerous tribes of gnats, beetles, bees and flies.

To theſe we add, as a fifth order, a numerous tribe lately diſcovered, to which naturaliſts have given the name of Zoophytes. Theſe do not go through the ordinary forms of generation, but may be propagated by diſſection. Some of them though cut into an hundred parts, ſtill retain life in each, and are eudued with ſuch a vivacious principle, that every part will, in a ſhort time, become a perfect animal. They ſeem a ſet of creatures placed between animals and vegetables, and make the ſhade that connects animated and inſenſible nature. To this claſs belong the polypus, the earth-worm, all the varieties of the ſea nettle. To this alſo may probably be referred thoſe curious creatures which produce the coral, the ſponge, and other ſingular and ſimilar marine productions.

It is impoſſible to finiſh our ſhort review of nature without obſerving the wonderful harmony and connection that ſubſiſts between all the different branches; without obſerving how happily one part ſupports another, and how every thing contributes to the general good. How infinitely great muſt that ETERNAL MIND be who framed all with ſuch amazing ſkill—Who ſees with a ſingle glance the operation and mechaniſm of the whole, from the minute anatomy of the ant, to thoſe innumerable worlds, thoſe vaſt and ſplendid orbs that gild the unbounded expanſe of the univerſe!

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FINIS.

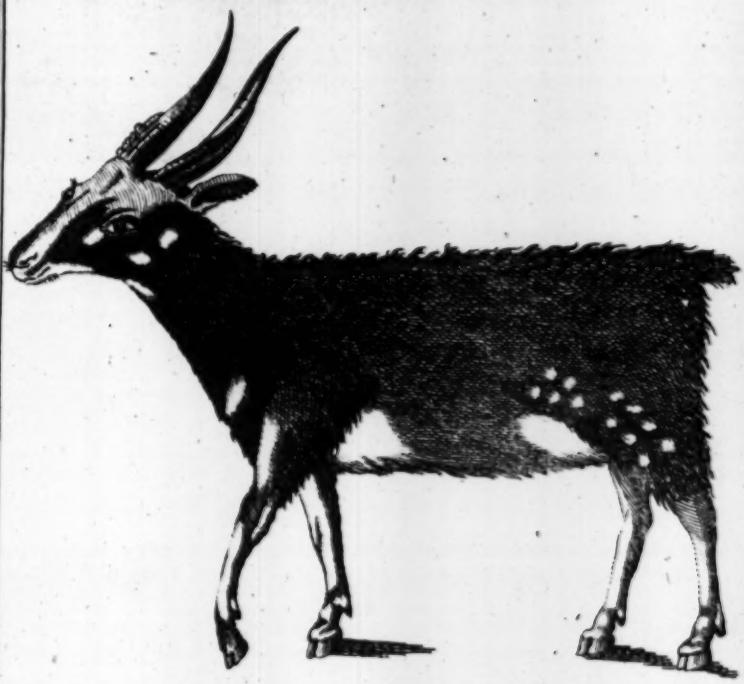
HIPPOPOTAMUS.

SPRINGER, OR SPRING-BOK.


Gnu
Buffalo

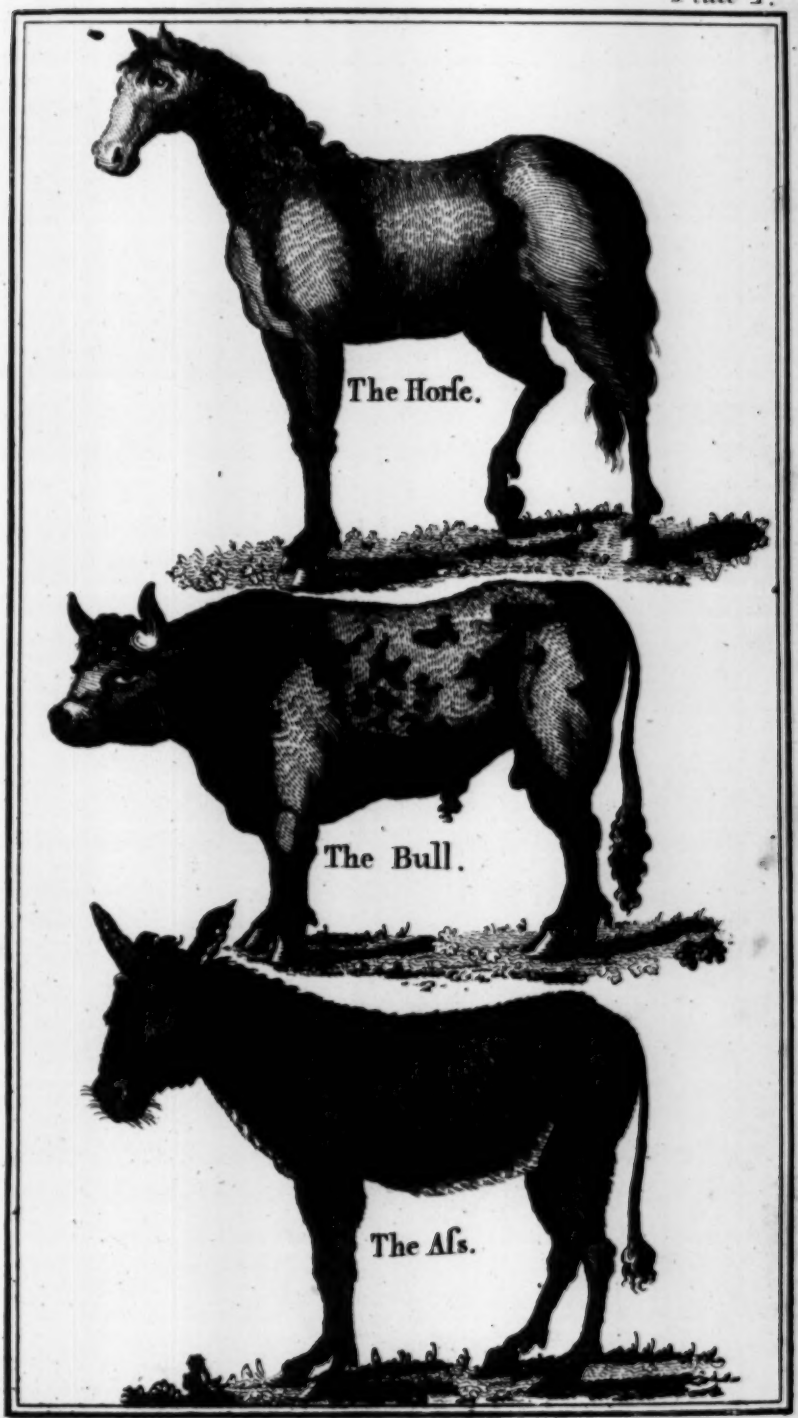
Dwarf Mice

VIVERRA RATEL.



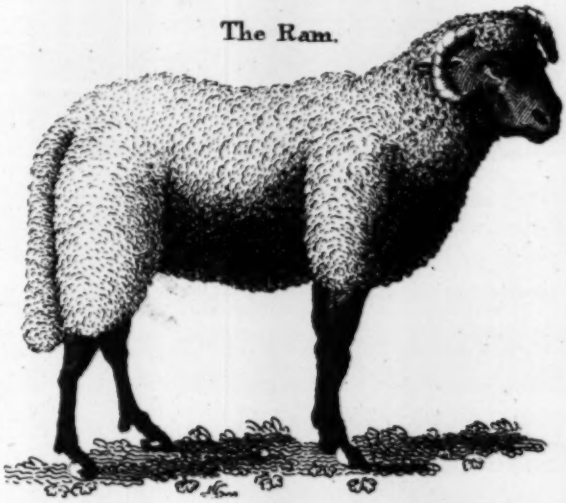
WOOD GOAT.


Hartbeast
Elk. Antilope



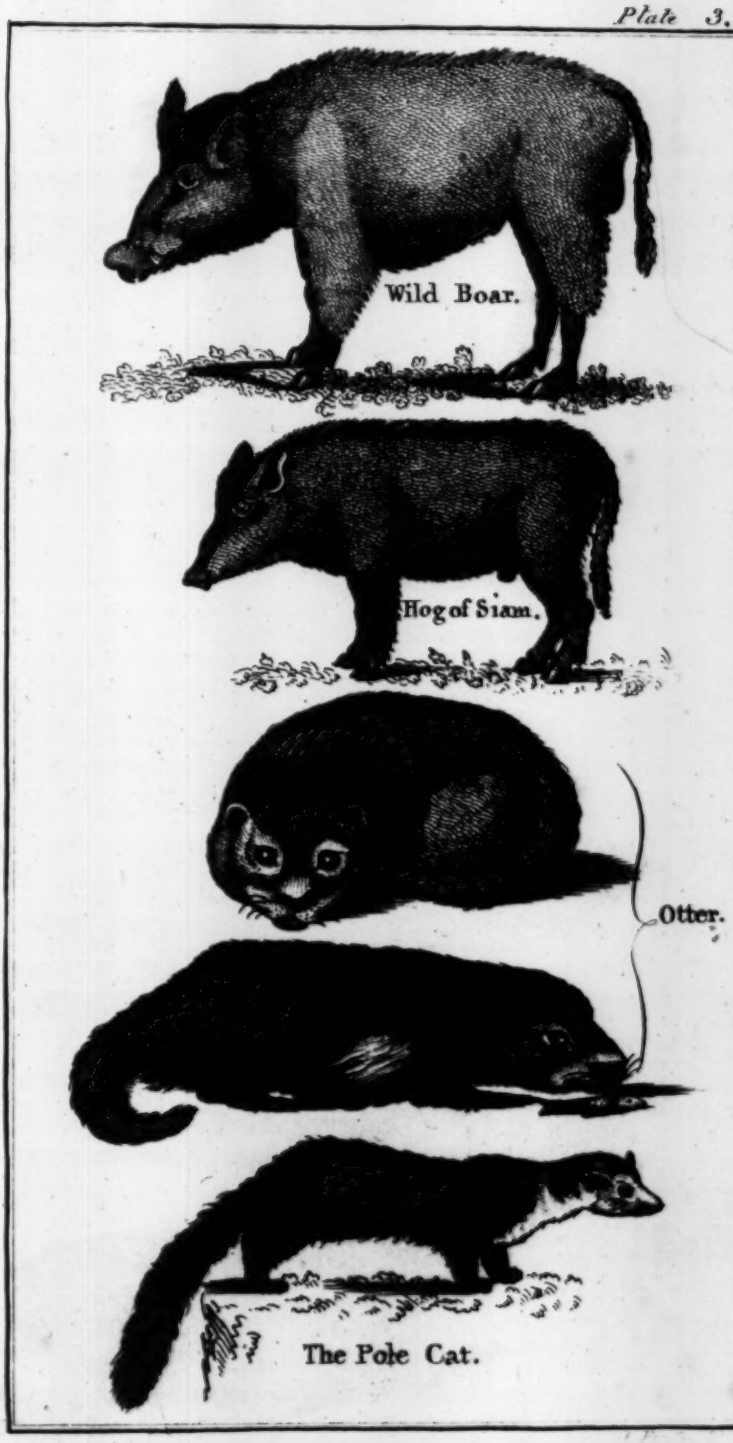
J. Fraſer ſc.

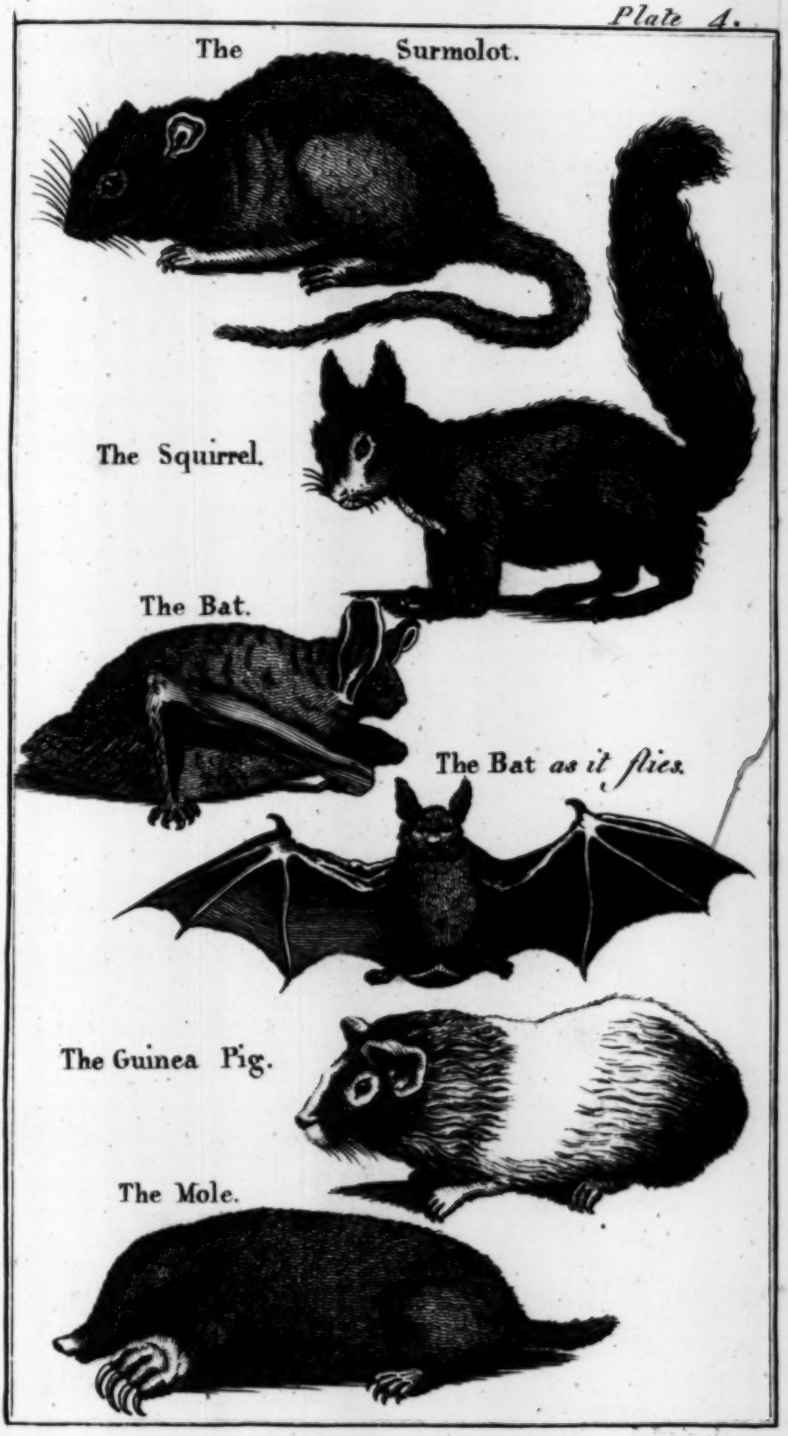
The Ram.



The Sheep.

The Fox.


Wild Boar.
Hog of Siam.
Otter.
The Pole Cat.


The Surmolot.
The Squirrel.
The Bat.
The Bat *as it flies.*
The Guinea Pig.
The Mole.

The Marmot.

The White Bear.

The Brown Bear.

J. Fraser Sc.

The Beaver.

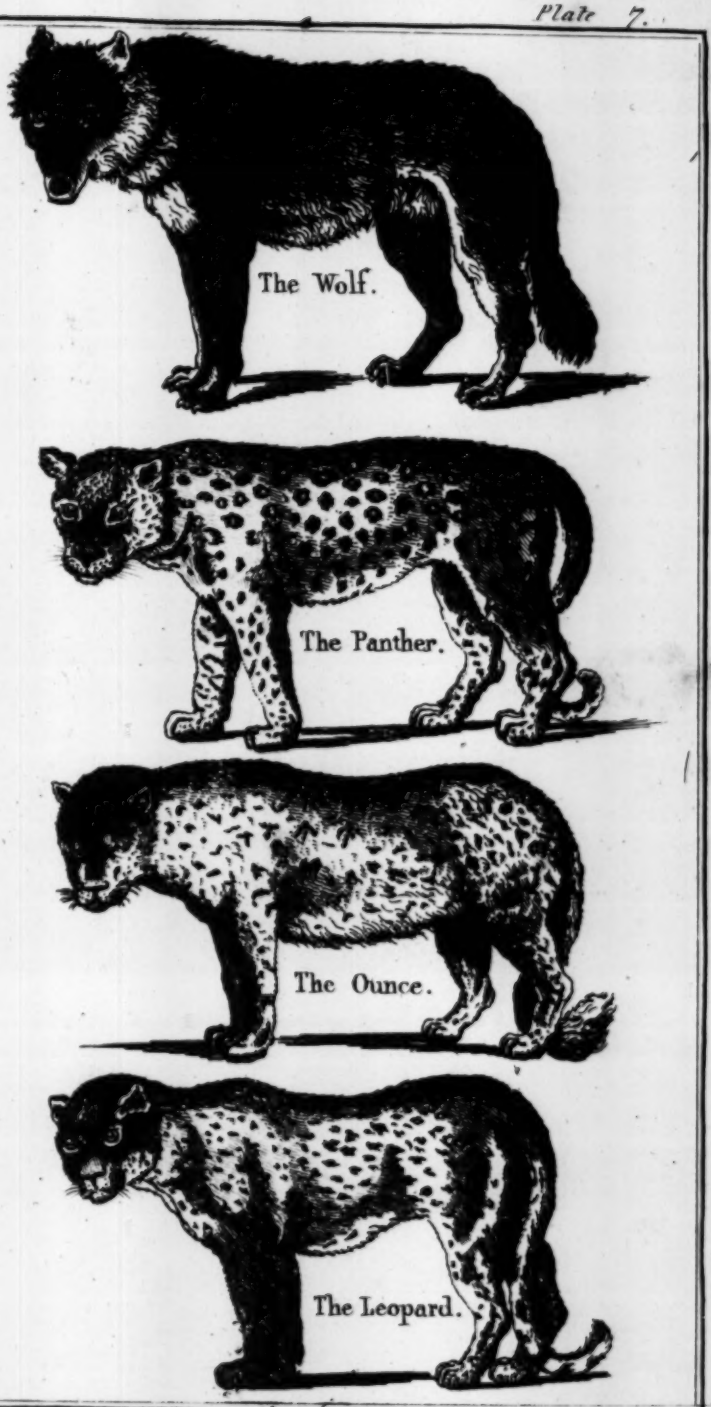
The Brown Coati.

The Black Coati.

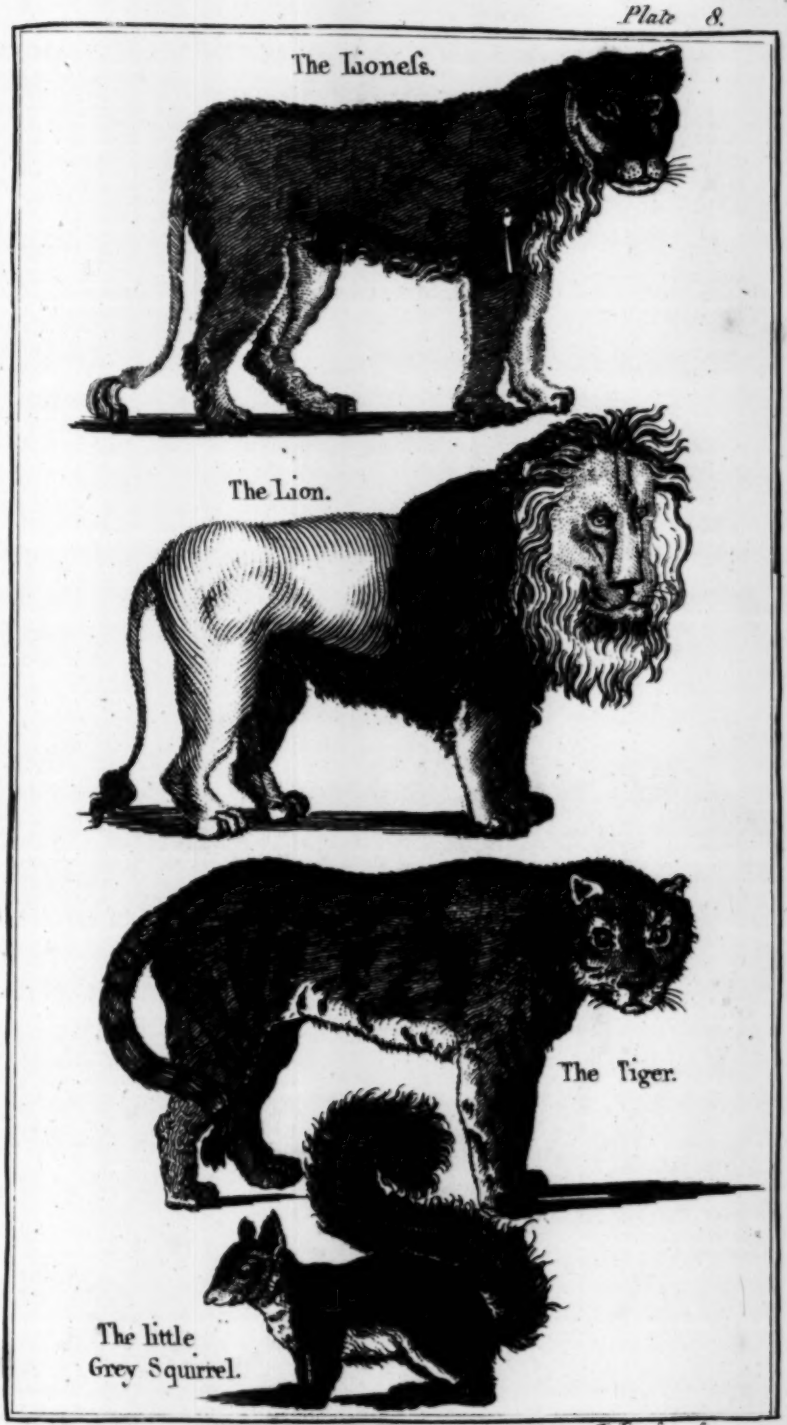
Ditto.

The Racoon.

J. Fraser Sc.



J. Fraser fc.



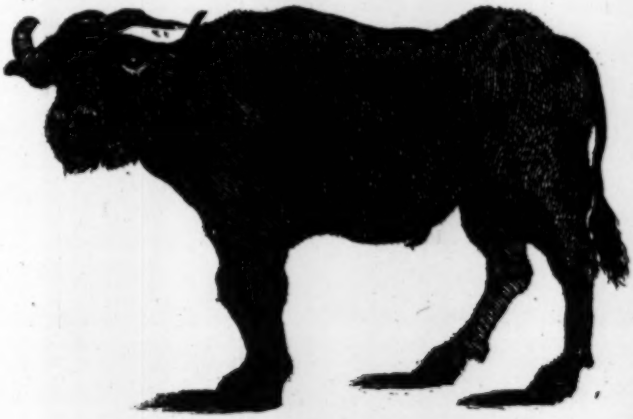
J. Fraſer ſc.

J. Fraser Sc.

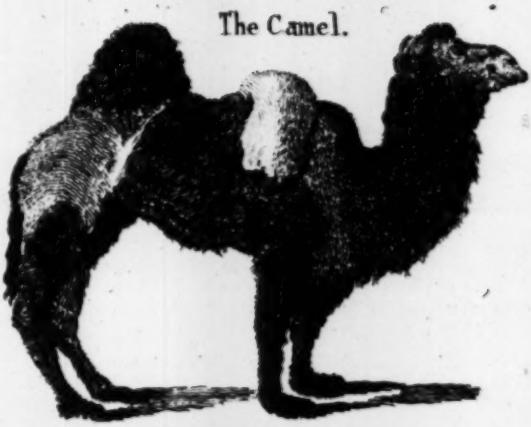
J. Fraser Sc.


The Cayopollin.
The Paca.
The Paca.
Male Opoſsum.
Female Opoſsum.
Male Marmose.
Female Marmose.
Hedge Hog
without Bristles
Ditto
with Bristles.
J. Fraser Sc.

The Buffalo.



The Camel.



The Dromedary.

J. Fraser Sc.

The Rhinoceros.

Juda Goat.

The Elephant.

J. Fraser Sc.

The Zebu.

The Male Goat.

Female Ditto.

J. Fraser Sc.

J. Fraser Sc.

The Agouti.

The Unau.

The Brown Bat.

The Red Bat.

J. Fraser Sc.


The Jocko.
The Magot.
The Little Gibbon.
The Great Gibbon or Long Armed Ape.

J. Fraser &c.

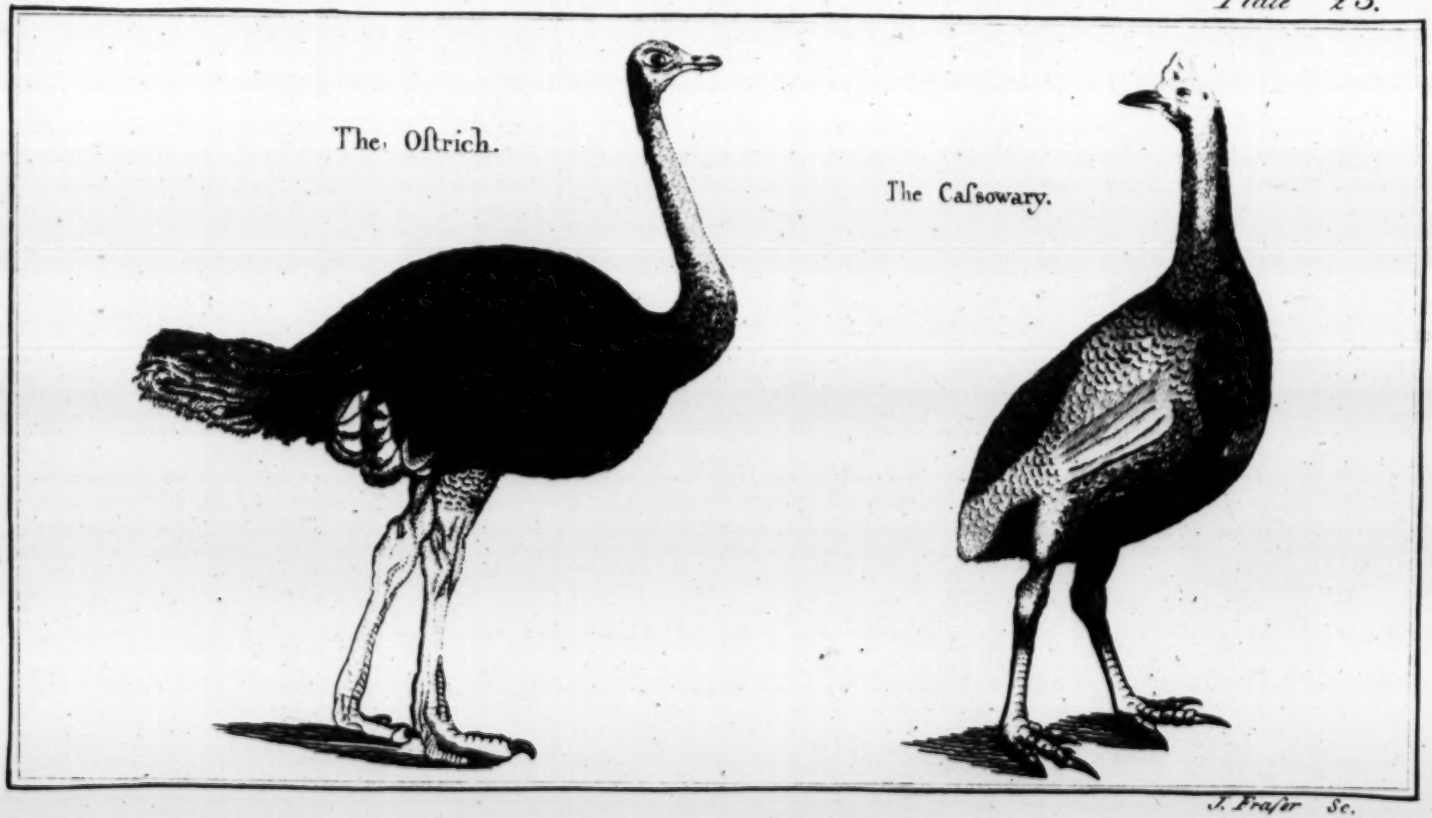
I. Fraser S.

J. Fraser Sc.

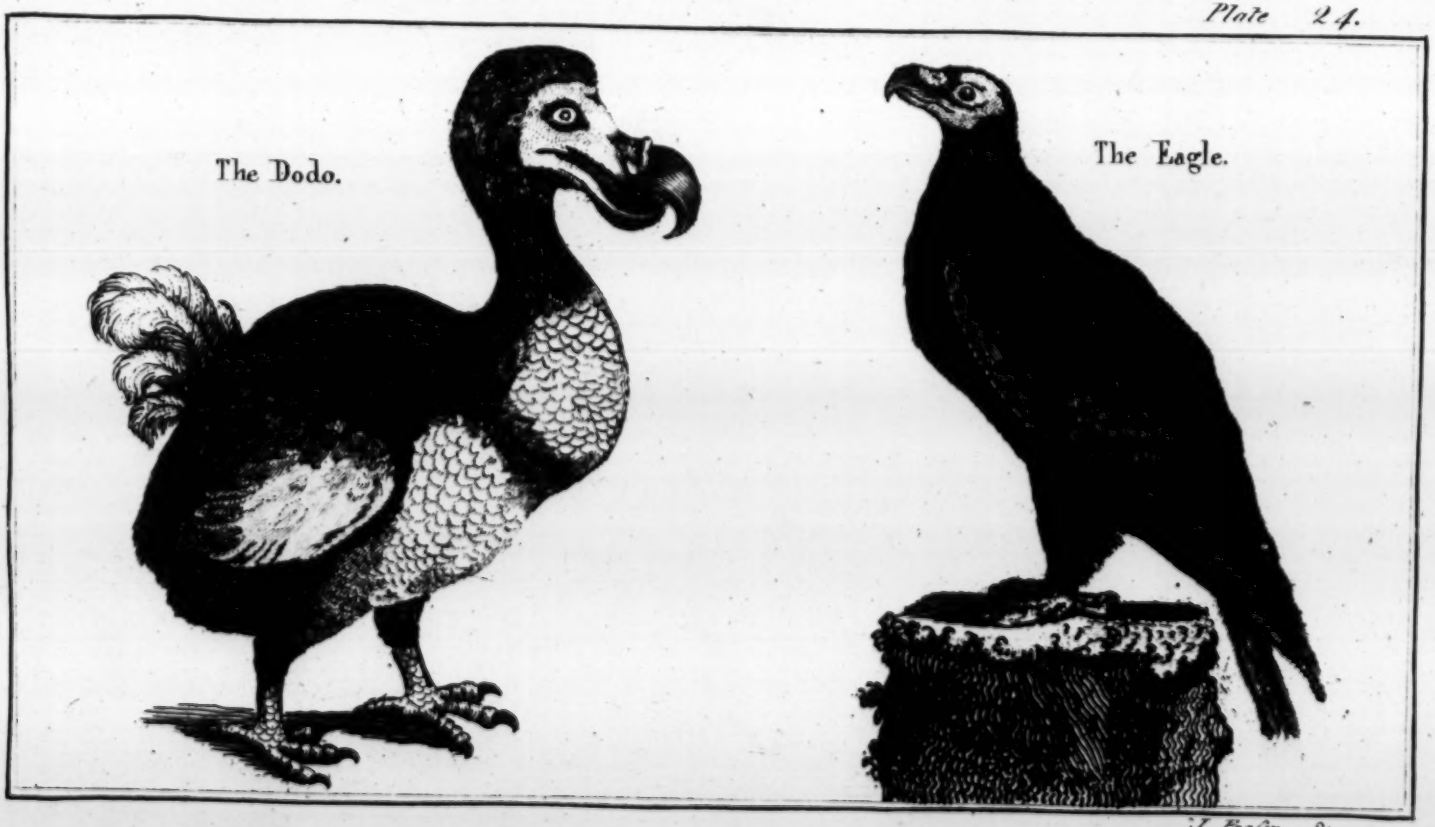
J. Fraser Sc.


The Tamarin.
The Saimiri.
The Talapoin.
The Saki.
The White Throated Sai.


The Coaita.
The Marikina.
The Pinch.
The Adult Ai.
The Mouſtac.

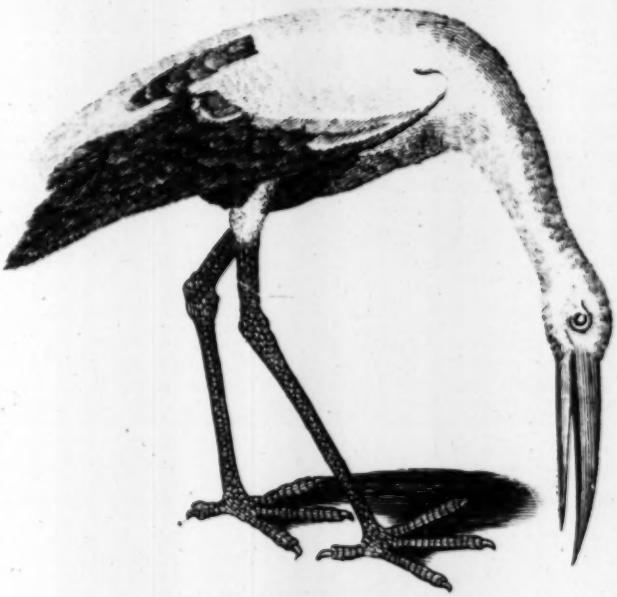


J. Fraſer Sc.


The Dodo.
The Eagle.
J. Fraser Sc.

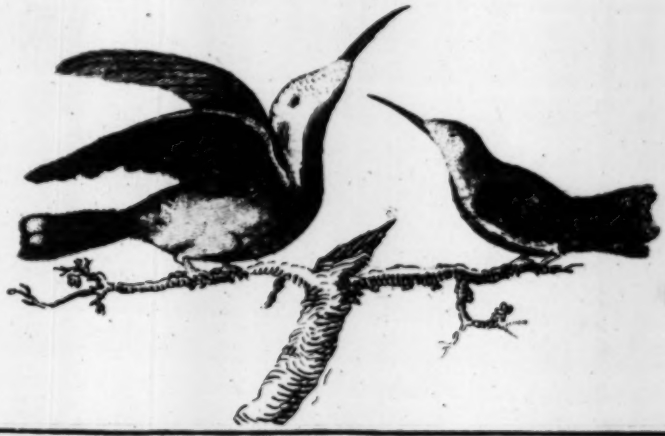
I. Fraser fe.

The White Stork.



The Balearic Crane.

Tropical Birds of the Woodpecker Species &
their manner of building their Nests.



J. Frater &c.


The Toucan.
The Huppoo
a Bird of the Pie kind.
The Cockatoo
a variety of the Parrot Species.

J. Fraier fe.

The Calao *or* Horned Indian Raven.

The Spoon bill.

J. Fraser fc.

The Flamingo.

The King of the Vultures.

J. Fraser fe.

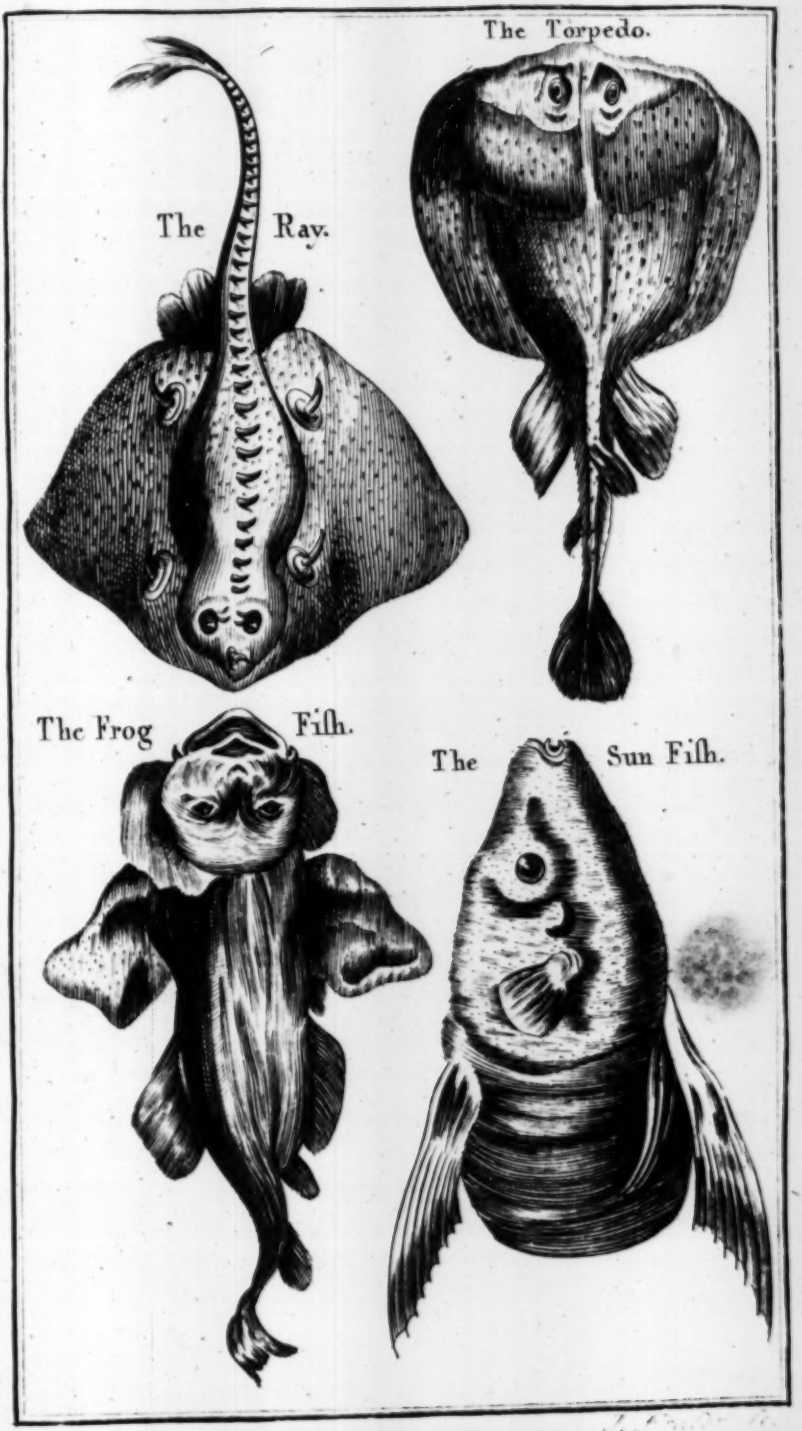
The Grebe.

The Avoſetta.

The Puffin *or* Coulterneb.

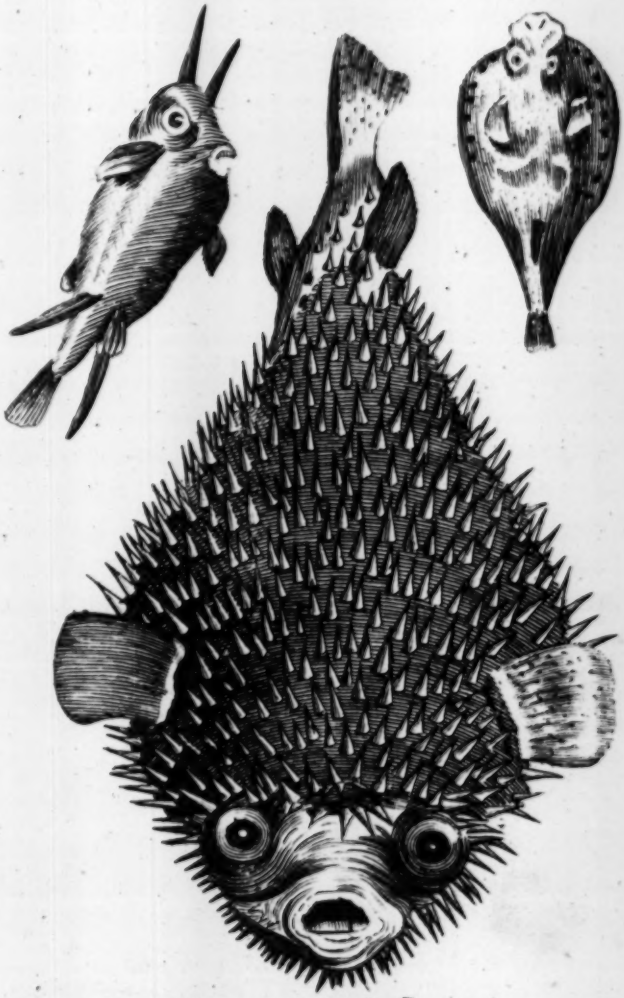
The Pelican.

J. Fraser fc.


The Torpedo.
The Ray.
The Frog Fiſh.
The Sun Fiſh.

The Oſtracion.

The Sea Orb.



The Sea Hedgehog.

The Sword Fiſh.

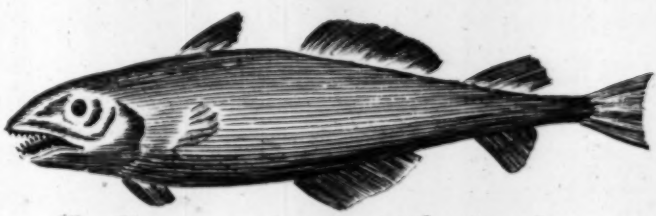
J. Fraler ſc.

The Sturgeon.

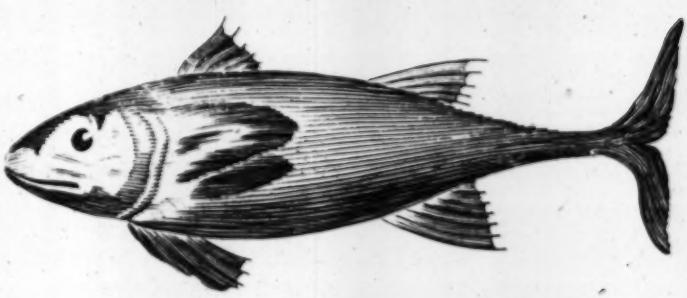
The Salmon.

The Saw Fish *a Species of the Sword Fish.*

The Cod.



The Tunny *a Species of the Scomber.*

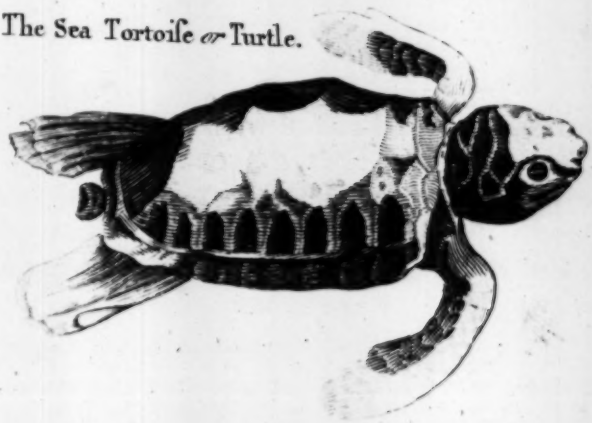


J. Fraser fc.

The Flying Fish.

The Land Tortoise.

The Sea Tortoise or Turtle.



J. Fraser sc.

The River Crab.

The
Sea Lobster.

The
Lobster Crab.

The
Violet Crab.

J. Frater fc.

The Bull Frog.

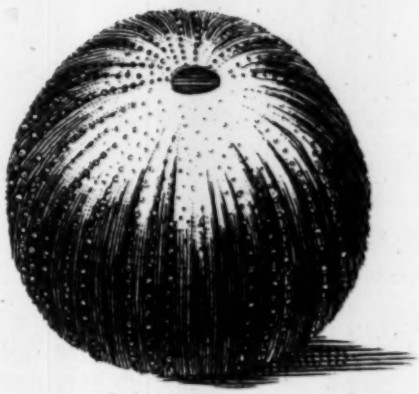
The Toad.

The Crocodile.

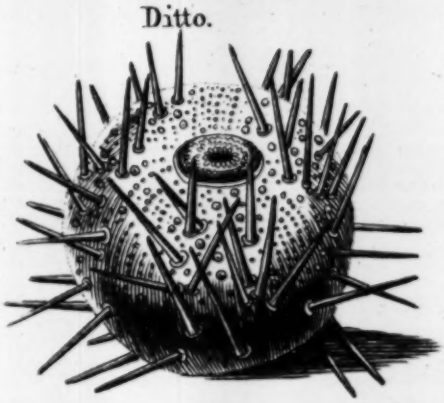
J. Fraser fc.

The Crocodiles Egg.

The Sea Urchin.



Ditto.



J. Prator fc.

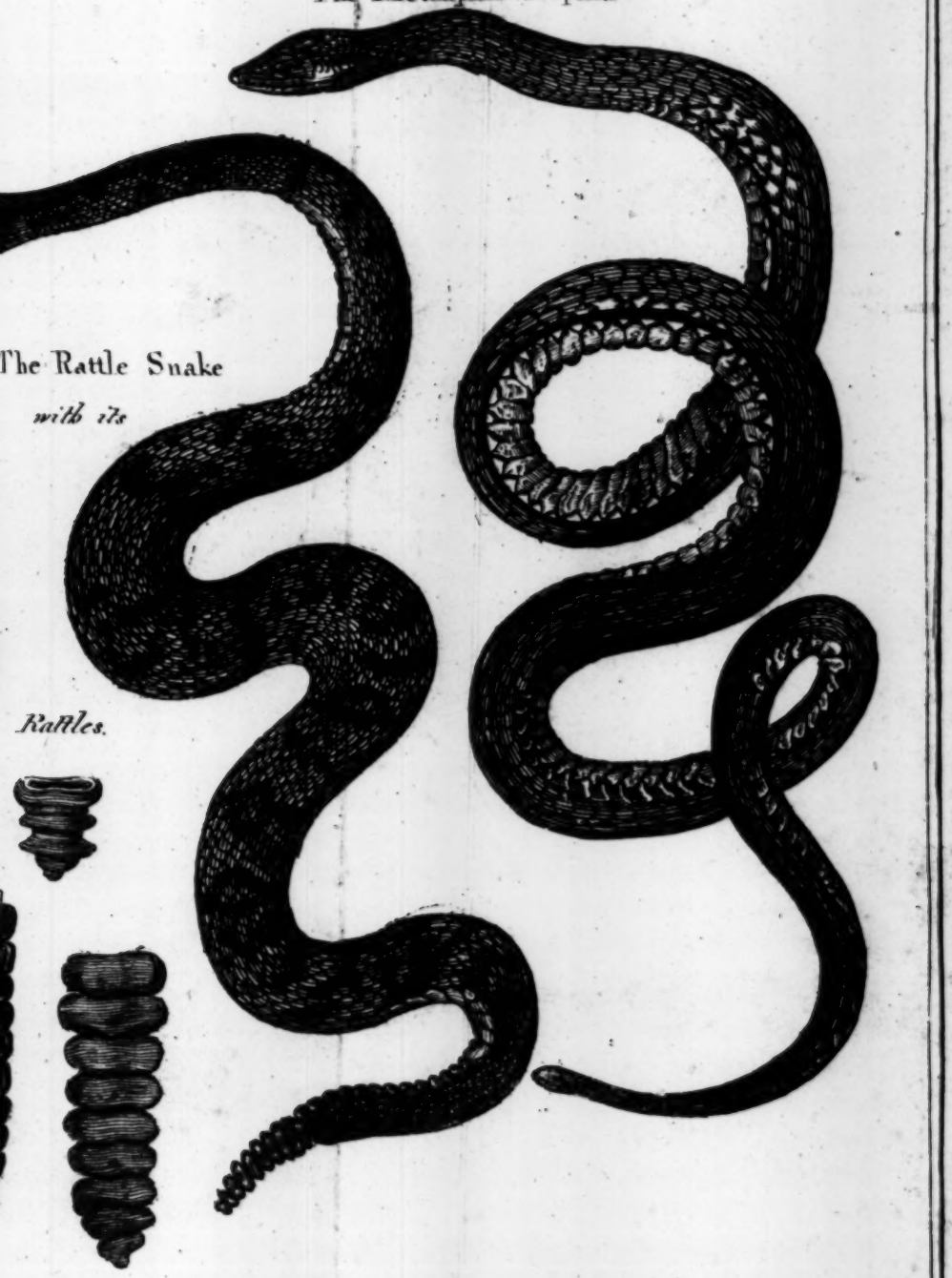
The Common Viper.

The Aſp.

The Rattle
with its

Rattles.

The Esculapian Serpent.



The Rattle Snake
with its

Rattles.